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To:	Jennifer Letourneau Jim Wilcox	From:	Emerson Olander Zachary Halstead
	Cambridge Department of Public Works 147 Hampshire St, Cambridge, MA 02139		Stantec Consulting Services Inc. 226 Causeway Street, 6th Floor Boston, MA 02114
File:	Cambridgeport Stormwater Improvements IDDE Summary	Date:	May 3, 2020 <b>Revised</b> June 15, 2021

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## EXECUTIVE SUMMARY

As part of the Cambridgeport Stormwater Improvements project, an Illicit Discharge Detection and Elimination (IDDE) program has been executed for the Cambridgeport neighborhood in Cambridge, MA. The program began in October 2017 and continued through March 2020. The following memorandum documents the approach taken to implement the program and summarizes the findings.

The program involved investigating and identifying any illicit sanitary sewer services connected to storm drains within the D10 and D12 drainage catchments. Historical drawings, building inspection reports, and closed-circuit television (CCTV) videos were collected and reviewed as a part of the preliminary IDDE investigations. Additionally, drain pipelines with missing data were televised. This data was used to identify buildings with active laterals tying into the drain system. After identifying laterals tied to non-illicit sources, the remaining drain segments were assigned to have building inspections or storm drain inspections and sampling.

Buildings were inspected to identify sewer and stormwater stacks in the basement, and sewer stacks were dye tested to identify an illicit connection to the storm drain. The dye testing procedure consisted of one engineer opening a sewer and stormwater manhole on the downstream pipe from the building and continuously monitoring for dye, while a second engineer entered the building, poured dye into a fixture (i.e., toilet, sink, etc.) and flushed it out of the lateral. Dry weather inspections and flow sampling were performed at selected manholes. This involved placing sandbags in the storm pipe invert and collecting the flow blocked by the sandbags after 48 hours of dry weather. A sample was collected and sent for lab analysis of E. Coli. Blocked flow was also sampled and analyzed for presence of detergents, chlorine and ammonia using field test kits. Additional samples were collected and sent for lab analysis in case of a positive field test. After inspection of 83 buildings, three (3) illicit connections were identified.

The City's remedial contractor redirected the identified illicit connections from the drain to the sewer system. After the corrections were made, Stantec performed follow-up inspections and confirmed the corrections eliminated contamination from the stormwater drainage system.

## BACKGROUND

The IDDE program involved investigating and identifying any illicit sanitary sewer services connected to the dedicated storm drains within the D10 and D12 drainage catchments. The D10 catchment area is approximately 150 acres and the D12 catchment area is approximately 110 acres. The land use is a highly dense urban area with a mix of residential, commercial, and industrial buildings and includes parcels owned by the Massachusetts Institute of Technology (MIT). Additional metrics regarding the two catchments is depicted in **Table 1**.

**Table 1. Cambridgeport Drainage System Summary**

	D10	D12	Total
<b>Catchment Size (Acres)</b>	152.9	107.6	260.5
<b>No. of Buildings</b>	546	730	1,276
<b>Length of Drain (LF)</b>	29,746	21,835	51,582

The D10 catchment flows to the existing Endicott Street outfall which contains a weir to hold back flows from the Charles River. In addition, there is a 10-inch underflow connection at the intersection of Pacific Street and Albany Street which directs base flows from the drain over to the Massachusetts Water Resources Authority (MWRA) sanitary sewer on Albany Street. The D10 catchment also overlaps with The Port / PL6 project which is currently under construction and is an ongoing stormwater improvements and separation project.

The D12 catchment area flows to the intersection of Waverly Street and Talbot Street and is directed into an 18-inch underflow connection to the local sanitary sewer and then over to the MWRA sewer system. As part of the Talbot Street Outfall project, a new stormwater outfall is proposed to be installed from Waverly Street down Talbot Street and over to the Charles River. This new outfall will collect the D12 drainage and redirect to the Charles River.

With both outfalls discharging into the Charles River, they will be subject to the National Pollutant Discharge Elimination System (NPDES) permit as administered by the United States Environmental Protection Agency (US EPA) as well as the Massachusetts Department of Environmental Protection (MassDEP). The intent of the IDDE program is to investigate and identify any illicit connections tributary to both drainage outfalls, so that they may be redirected to the sanitary sewer prior to the Talbot Street outfall being activated.

## HISTORICAL DATA REVIEW

Historical drawings and building inspections of the Cambridgeport area were collected and gathered as a part of the preliminary IDDE investigations. These drawings included as-built sewer volumes, record drawings for improvement project to roadways, sewer, and drainage, utility drawings, etc. The historical documents were used throughout the IDDE project to identify the location, size, and connectivity of existing pipeline. The full list of the historical drawings gathered during this phase is cataloged in **Appendix A**.

## CCTV INVESTIGATIONS

Existing historical CCTV records of the storm drain pipelines in the Cambridgeport area were provided by the City. The recorded dates of the CCTV ranged from 2008 to 2017. In many cases the CCTV reports were not available, and therefore videos were reviewed to make note of active lateral service line connections to the drain system. Any open or defective laterals were noted and considered to be active. The location of active laterals were used to identify buildings that could be the source of an illicit connection. These buildings were flagged in GIS, noting the location and building type, and were scheduled for further investigation that could include manhole inspections and sampling, building inspections, and dye testing.

Major defects to the drainage system that may require the attention of the City were also noted during review of historical CCTV records and are summarized in **Table 2**. Major defects include utility obstructions, infiltration, voids, and severe cracks or fractures which would require repair or replacement of pipe. The most severe defect noted was a concrete obstruction in a 15-inch diameter drain line on Valentine Street, which obstructed approximately 75% of the pipe cross section spanning approximately 28-feet (ft) of the line.

The obstruction was reported to the City and required removal as well as replacement of the damaged portion of the drain pipe. See **Appendix B** for a sketch of the Valentine Street obstruction with the specific location.

Additional drain pipelines that were not included in the historical CCTV records from the City were televised by National Water Main Cleaning Company (NWMCC) under this contract during the winter and spring of 2018. Heavy cleaning was required for portions of the drain in order to complete the CCTV work. Stantec provided field oversight of CCTV activities to ensure complete and quality deliverables. The additional CCTV videos were reviewed in the same fashion as the historical CCTV records. A complete table including notes of the CCTV footage reviewed is provided in **Appendix C**.

**Table 2. CCTV Review – Major Defects**

Street	MH Reach	Distance (ft)	Notes
Cottage Street	D12DMH7015 – D12DMH7010	101.2, 105	Infiltration - dripper
Erie Street	D12UGS0003 – ACCESS231	144	Broken – Soil visible
Green Street	D10DMH3370 – D10DMH3365		Debris obstructing 95% of pipe
Hamilton Street	D12DMH7405 – D12DMH7510	249.8	DI pipe and concrete duct bank obstruction through pipe.
	D12DMH7405 – D12DMH7310	218	Brick weir at end of pipe approx. 1/3 diameter of pipe.
Magazine Street	D12DMH7520 – D12DMH7510	165	DI pipe through pipe
	D12DMH7525 – D12DMH7515	16.6, 30.9, 155	Holes (12 o'clock)
Mass Ave	D10DMH3265 – D10DMH3260	Multiple	Fractures, cracks, broken pipe throughout distance of pipe
Pearl Street	D10DMH3325 – D10DMH3320	93	Infiltration – dripper (12 o'clock)
	D12DMH6630 – D12DMH6625	181	DI pipe through drain (10 to 2 o'clock)
Sidney Street	D10DMH0605 – D10DMH0600	136	DI pipe through pipe (11 to 1 o'clock)
Speridakis Terr.	D10DMH2460 – D10DMH2457	202	Hole – void visible (9 to 10 o'clock)
Tudor Street	D10DMH1155 – D10DMH0720	109	Hole (5 to 7 o'clock)
Valentine Street	D10DMH2330 – D10DMH2315	5	Offset joint - large
	D10DMH2031 – D10DMH2030	125	Concrete obstruction through center of pipe
Watson Street	D10DMH2715 – D10DMH2712	57	Broken – soil visible (8 to 4 o'clock)
		148 – 170	Multiple fractures and Pipe deforming horizontally (12 o'clock)
Waverly Street	D12DMH0805 – D12DMH0705	31	Infiltration runner (4 to 6 o'clock, within 8 ")
	D12DMH0605 – D12DMH0700	6	Infiltration runner (6 to 9 o'clock)
	D12DMH6210 – D10DMH0305	63	Obstacle - suspect utility (10 to 12 o'clock)

## BUILDING INSPECTIONS

After identifying active laterals tying into the drain system, an assessment was completed to determine which laterals were likely tied to non-illicit sources, such as catch basins, area drains, parking lot drains, etc. The buildings in front of these laterals were noted and tracked in GIS in case they were needed for future investigations. The following buildings were determined not to require inspection for this reason:

- #77 Magazine Street
- #213 Hamilton Street
- #100 Magazine Street
- #174 Hamilton Street
- #10 Corpora McTernan Street
- #100 Pacific Street
- #75 Hamilton Street
- #90 Hamilton Street

The remaining drain segments with lateral connections identified were either assigned to have building inspections or storm drain inspections and sampling. This was based on the number of buildings with potential illicit laterals on each segment of a storm drain. Manhole inspections and sampling were completed for segments with a greater number of buildings. Building inspections were completed for segments with fewer buildings. The inspections were divided based on the two areas within Cambridgeport, D10 and D12.

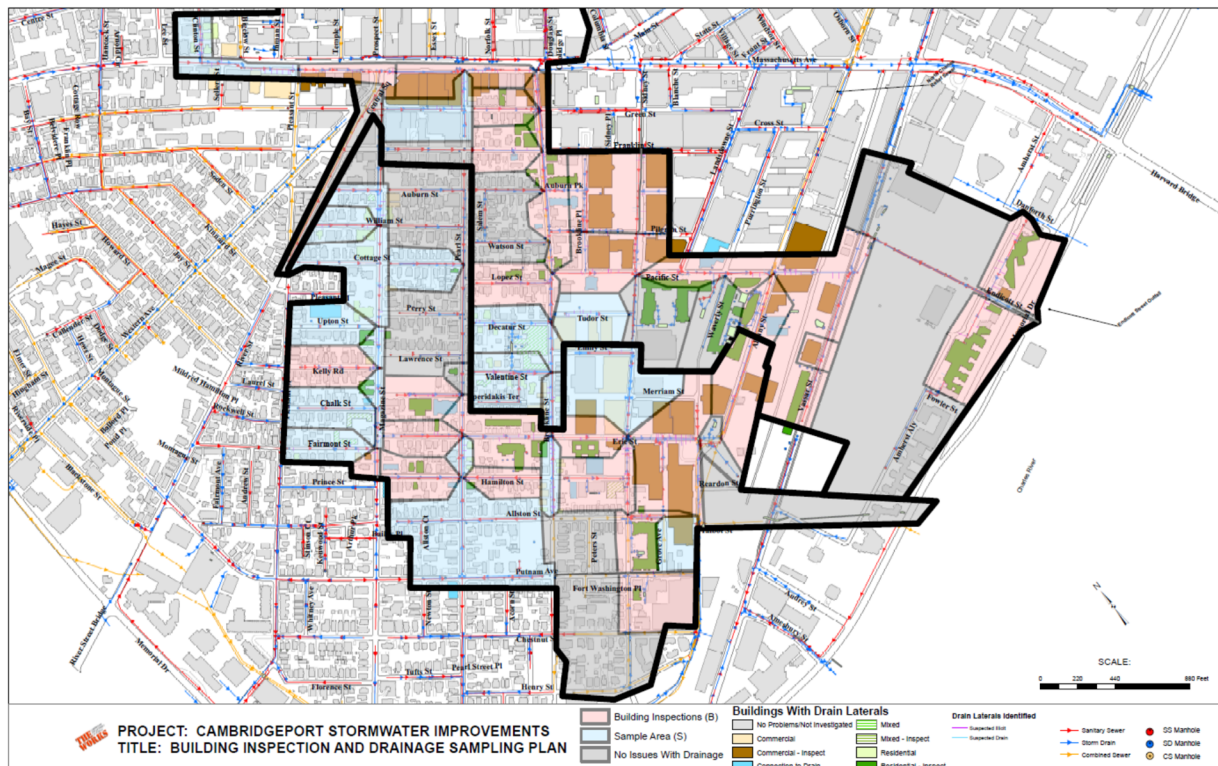


Figure 2 – Cambridgeport D10 and D12 Building Inspection and Sampling Areas

Residential houses requiring inspection were notified with flyers explaining the IDDE work being done in the area and instructing the residents to contact Stantec or the City to schedule an inspection. If the building had a basement, it was inspected to identify the sewer and stormwater stacks. If the building had no basement, then all the individual bathrooms in the building were dye tested. Sewer stacks were identified when numerous laterals branching from the service stack were observed, and the stormwater stacks were identified by a simple vertical stack with no laterals branching out. If there were numerous sewer stacks, they were individually traced back to potential sources, such as a toilet or sink, and dye tested. If there was only one sewer stack, then one bathroom in the building was dye tested. Only one residential unit at #4 Rollins Court refused inspection, so sampling of the downstream stormwater line on Lopez Street was completed instead. Note that only the sewer stacks were dye tested during the entirety of the investigation.

Apartment buildings were inspected using the same procedure as the single and multi-family homes. At #3 Woodrow Wilson Court, there were numerous sewer stacks in the basement with no clear indication of the location of the sources, so it was decided to have the storm water pipe downstream of the building sampled instead. At the MIT student dorms #70 Pacific Street and #235 Albany Street, there was no basement, so only the bathrooms near the suspected laterals were dye tested. Apartment complexes at #66 Brookline Street, #70 Brookline Street, #91 Pacific Street, and #20 Corporal McTernan Street were dye tested in a similar fashion.

Commercial buildings were typically cold called by arriving during normal business hours and requesting a building inspection or scheduling a future inspection. The approach to the commercial building inspection was the same as with the residential buildings. For multi-story commercial buildings without a basement, the bathrooms on each floor were dye tested, typically dye testing one toilet per bathroom. The commercial buildings at #270 Albany Street, #99 Erie Street, and #179 Sidney Street had neutralization tanks to collect disposed chemicals and adjust pH before being discharged to the sewer. Dye could not be added to these tanks due to the discharged water meeting strict pH requirements, so they were not tested.

The dye testing procedure consisted of one engineer opening a sewer and stormwater manhole on the downstream pipe from the building and continuously monitoring for dye, while a second engineer entered the building and poured dye into a fixture (i.e. toilet, sink, etc.) while continuously running water to ensure all the dye is flushed out of the lateral. The engineer monitoring the manholes would notify the second engineer when the dye is spotted. If after approximately 30-45 min no dye is observed in either the sewer or drain manhole, the engineer would relocate to another possible downstream location and the dye test would be repeated. If after relocating to all the possible downstream locations no dye is observed, then the building would be designated as “Unknown.”

Overall there were 83 buildings inspected in Cambridgeport, and 3 suspected illicit connections were identified as summarized in following sections. **Appendix D** contains a table summarizing all building inspection results.

On March 31, 2021, a Stantec field team revisited #40 Erie St to conduct another building inspection at this property. Field notes dated September 12, 2005 from CDPW staff indicated potential illicit connections from this property and discharging to the drain on Grove Avenue. The property was revisited to confirm nothing was missed during Stantec’s initial building inspection on July 12, 2018 and the IDDE sampling program. Upon revisiting the building in March 2021, all sanitary fixtures were dye tested and traced to the Waverly Street sewer and no illicit connection was found.

## DRY WEATHER INSPECTIONS AND FLOW SAMPLING

Dry weather inspections and sampling were completed at stormwater manholes selected based on review of historical data and CCTV reviews. Initial manhole inspections included verification of pipeline connectivity,

observation of flow conditions, estimation of the number of sandbags needed to create a dam for the upstream pipe, and identification of any standing water in the manhole that would interfere with an isolated stormwater sample. In cases where there was too much standing water (approximately > 6”), the potential illicit buildings were inspected instead.

The sandbagging effort consisted of either lowering sandbags from the surface or performing confined space entry to place sandbags on the invert of the stormwater pipe, which typically required 1-3 sandbags. After 48 hours of dry weather, the manhole was revisited and if flow was blocked by the sandbags, a sample was collected and sent to the lab for analysis of E. Coli, and the sandbags were removed. Blocked flow was also sampled and analyzed for the presence of detergents and ammonia using field test kits. Chlorine testing with a Hach DR-300 was added to conform to the City's IDDE Plan. If the field test kits were positive, then additional samples were collected and sent to the lab for further analysis for ammonia and detergents.

The first stormwater sampling effort was on May 1, 2018 with three samples collected on May 3, 2018. The second stormwater sampling effort was on September 15, 2018, with four samples sent to the lab on September 17, 2018. **Table 3** provides a summary of laboratory sampling results. Lab reports can be found in **Appendix E**. A Table summarizing flow sampling results can be found in **Appendix F**. All manhole inspection data can be found in **Appendix G**.

Samples collected for lab testing were sent to Alpha Analytical Laboratories located in Westborough MA. Lab results were compared to the IDDE thresholds to check for compliance. The benchmark concentration thresholds for E. Coli, Ammonia and Detergents along with the original sampling procedure can be found in **Appendix H**. The City’s updated IDDE procedures will be followed for future investigations.

**Table 3. Laboratory Sampling Results**

Manhole ID /Location	Lab ID	E. Coli (col/100ml)	Ammonia (mg/L)	Detergents (mg/L)	Non-Compliance	Sources Identified
Compliant Parameters	-	≤ 235 cfu/100mL	≤ 0.5 mg/L	≤ 0.1 mg/L	-	-
229-1	L1815834-02	Non-Detect (ND)	NA	NA	NA	
229-2	L1815834-01	130	NA	NA	NA	
D12DMH7520	L1815834-04	98,000	32.9	0.19	E. Coli, Ammonia & Detergents	Magazine St illicit identified
Sydney/ Erie S-8	L1836861-01	770	NA	NA	E. Coli	Suspect background contaminants
S-15 Brookline/ Decatur	L1836861-02	5	NA	NA	NA	
Pleasant/ Mass Ave	L1836906-01	60	5.66	ND	Ammonia	Mass Ave illicit identified
Pearl/ Mass Ave	L1836906-02	2	NA	NA	NA	

## CONFIRMED ILLICIT CONNECTIONS

Three (3) illicit connections were identified as summarized in the following sections. Stantec prepared a sketch for each illicit connection identifying the location of the illicit lateral. The sketches are provided in **Appendix I**.

### **#57/59 Magazine Street**

During the stormwater sampling effort on May 3, 2018, a non-compliant sample was obtained from the upstream pipe in D12DMH7520 on Magazine Street. Three buildings upstream of this location were identified as potential illicit connections: #57/59 Magazine Street, #60 Magazine Street, and #73/75 Magazine Street. As a result, #60 Magazine Street and #73/75 Magazine Street were dye tested and determined to be legally connected to the sanitary sewer. Review of an as-built drawing of a storm drain installed in Magazine Street during May 1939 showed two sewer laterals from #57/59 Magazine Street. Review of the historical CCTV of the stormwater line on Magazine Street identified two laterals potentially from #57/59 Magazine Street, with the lateral 144 ft downstream of D12DMH7537 observed to be active.

Stantec met with the building maintenance staff for #57/59 Magazine Street on July 12, 2018 and inspected the building basement. Two sewer laterals to Magazine Street were identified; the first on the northern wing of the building, and the second on the southern wing. A toilet in the basement tied to the northern sewer lateral was dye tested and the dye was observed in the sewer manhole S30SMH1730 on Magazine Street. A slop sink tied to the southern sewer service was dye tested, and the dye was observed in drain manhole D12DMH7537 on Magazine Street. All the bathrooms and fixtures on the southern portion of the building collect and discharge from this lateral.

### **#750 Mass Ave (7-Eleven)**

NWMCC notified Stantec of a possible illicit lateral connection identified during CCTV inspection on Massachusetts Avenue (Mass Ave) approximately 40 ft downstream of drain manhole D10DMH3260.

The 7-Eleven convenience store at 750 Mass Ave was dye tested on April 4, 2018. After approximately 45 minutes, dye was observed in drain manhole D10DMH3257 which is located within the sidewalk along Mass Ave. The shared building basement was accessed through the Pandemonium Books & Games store at #4 Pleasant Street. One sewer service was observed going into the concrete slab foundation to Mass Ave. The building owner explained that the building sewer service was recently replaced, which is when it may have been redirected to the drain line on Mass Ave.

Stantec provided sketches for three alternatives to re-route the illicit connection to the sanitary sewer system.

### **#219 Vassar Street**

NWMCC notified Stantec of a possible illicit lateral connection identified during CCTV inspection on Vassar Street approximately 69.6 ft downstream of drain manhole D10DMH1115.

Dye testing of the building at #219 Vassar Street was scheduled through MIT and completed on April 19, 2018. MIT building maintenance staff poured the dye because the facility is a childcare center and Stantec was not allowed to enter. After dye testing a toilet in the building, the dye was observed in drain manhole D10DMH1110 on Vassar Street.

## POST-CORRECTION INSPECTIONS

The City's remedial contractor redirected the identified illicit connections from the drain to the sewer system. As-built drawings for the re-direction of these illicit connections are provided in **Appendix J**.

After the corrections were made, Stantec performed follow-up inspections to confirm the corrections eliminated contamination from the drainage system.

### **# 57/59 Magazine Street**

No flow or standing water was observed in manhole D10DMH7520 on February 3, 2020. Four sandbags were lowered from the surface and placed in the manhole invert in the channel. After 48 hours of dry weather, the manhole was revisited on February 5, 2020. No flow was captured by the sandbags and the manhole was found to be dry.

### **#750 Mass Ave (7-Eleven)**

Less than an inch of standing water was observed ponded in the inlet of manhole D10DMH3257 on January 28, 2020. Two sandbags were lowered from the surface into the outlet invert. After 48 hours of dry weather, the manhole was revisited on January 30, 2020. No flow was captured by the sandbags and the manhole was found to be dry.

### **#219 Vassar Street**

Dye testing of the building at #219 Vassar Street was scheduled through MIT and completed on March 12, 2020. MIT building maintenance staff poured the dye which was observed in sewer manhole S22SMH0210. No dye was seen in the drain manhole D10DMN1110.

## OTHER OBSERVATIONS

### **#600 Mass Ave (Supreme Liquors)**

Stantec inspected #600 Mass Ave on October 15, 2018. The building basement, which was accessed through Supreme Liquors, was inspected and one sewer service and one stormwater service to Mass Ave were identified. The sewer service was traced back to a toilet in Supreme Liquors, which was dye tested and the dye was observed in the sewer manhole S23SMH1645 on Mass Ave. Additionally, in the basement there were three sewer stacks; two stacks connected to two separate slop sinks, and one connected to a toilet in the basement. All three sewer stacks were dye tested but dye was not observed in S23SMH1645 or the drain manhole D10DMH3220 on Mass Ave. During subsequent dye testing on November 2, 2018, dye from one of the sewer stacks was observed in a cleanout located on the sewer lateral in the basement. This suggested that the lateral was backed up and not flowing to Green Street. On March 12, 2020 the building manager confirmed that the cleanout was snaked, and the lateral confirmed to be connected to the sanitary sewer on Green Street.

## APPENDICES

- Appendix A – Record Drawing Index
- Appendix B – Valentine Street Obstruction Sketch
- Appendix C – CCTV Database (Existing and New)
- Appendix D – Building Inspection Results Table
- Appendix E – Lab Reports



Appendix F – Sampling Results Table  
Appendix G – Manhole Inspection Forms  
Appendix H – Sampling Procedure  
Appendix I – Illicit Redirection Sketches  
Appendix J – Illicit Redirection As-builts

**APPENDIX A**  
**RECORD DRAWING INDEX**

STREET	YEAR	LIMITS	TYPE	PATH EXTENSION	PLAN
Albany St	2007		San.&Stm.	Endicott Street Area Drainage Improvements (Albany St)	C-01
Albany St	2007	Pacific St	San.&Stm.	Endicott Street Area Drainage Improvements (Albany St)	C-02
Albany St	1898	Pacific St	San.&Stm.	Sewer Volumes\Catchment_D10\Albany St	sew-20-06
Albany St	1906	Pacific St	San.&Stm.	Sewer Volumes\Catchment_D10\Albany St	sew-22-37
Albany St	1920	Pacific St to Cross St	Utility	Utility Records\Historic Utilites\D10\Albany St	HUA-158
Albany St	1920	Erie St	Utility	Utility Records\Historic Utilites\D12\Albany St	HUA-159
Albany St	1895	Erie St	Utility	Utility Records\Historic Utilites\D12\Albany St	HUB-047
Albany St	2001	Pacific St to Erie St	San.&Stm.	MIT Utility Drawings	MIT Utility_2_2016
Albany St	UNK	Waverly St	San&Stm.	North Charles Relief Sewer\D10_D12 Project Area	NorthChsReliefSewerContractC209-Sht06 - Markup
Albany St	UNK	Pacific St	San.&Stm.	North Charles Relief Sewer\D10_D12 Project Area	NorthChsReliefSewerContractC209-Sht07 - Markup
Allston St	1873	Magazine St to Pearl St	San.	Sewer Volumes\Catchment_D12\Allston St	sew-06-31
Allston St	2000	Sidney St to Grove Ave	Stm.	Cambridgeport Roadway Improvements	CambridgeportRoadways-2003_71-Drain
Allston St	1876	Brookline St to Pearl St	San.	Sewer Volumes\Catchment_D12\Allston St	sew-08-44
Allston St	1885	Brookline St to Sidney St	San.	Sewer Volumes\Catchment_D12\Allston St	sew-12-32
Allston St	1890	Brookline St to Waverly St	San.	Sewer Volumes\Catchment_D12\Allston St	sew-15-26
Allston St	UNK	Pleasant St to Pearl St	Utility	Utility Records\Comcast Utility	377-530
Allston St	1920	Putnam St to Pearl St	Utility	Utility Records\Historic Utilites\D12\Allston St	HUA-183
Allston St	1895	Brookline St to Sidney St	Utility	Utility Records\Historic Utilites\D12\Allston St	HUB-066
Allston St	1973	Magazine St to Brookline St	San.&Stm.	Maguire Drawings\Allston St	11
Allston St	UNK	Allston St to Grove St	San.&Stm.	Cambridgeport Roadways	Proposed
Allston St	UNK	Sidney St to Grove Ave	San.&Stm.	Cambridgeport Roadways	Survey
Allston Ct	1876	Allston St	San.	Sewer Volumes\Catchment_D12\Allston Ct	sew-09-22
Amherst Aly	1901	Fowler St to Endicott St	San.&Stm	_Other Historical Plans\Catchment D10\Amherst Aly	3952
Amherst Aly	1940	Fowler St to Endicott St	San.&Stm	_Other Historical Plans\Catchment D10\Amherst Aly	7052
Amherst Aly	1959	Fowler St to Endicott St	San.&Stm	_Other Historical Plans\Catchment D10\Amherst Aly	7547
Amherst Aly	1901	Endicott St to Danforth St.	San.&Stm	Sewer Volumes\Catchment_D10\Amherst Aly	sew-21-49
Amherst Aly	1918	Fowler St to Endicott St	San.&Stm	Sewer Volumes\Catchment_D10\Amherst Aly	sew-26-25
Amherst Aly	2017	Vassar St to Memorial Dr	Stm.	Talbot St Outfall 50% Dwgs	_2017-11-03 Talbot Street Outfall Plans - 50-pct Design Development - FINAL 2017-11-07
Amherst Aly	UNK	Fowler St to Danforth St	San.&Stm.	CMH7\CMH7cad.zip\Existing Survey - CAD\MIT AMHERST ALLEY	PRELIMINARY MIT AMHERST ALLEY
Amherst Aly	2001	Fowler St to Danforth St	San.&Stm.	Cambridgeport Roadways	ALLO0FS
Amherst Aly	2001	Fowler St to Danforth St	San.&Stm.	MIT Utility Drawings	MIT Utility_1_2016
Amherst Aly	1997	Dansforth St to Audrey St	San.&Stm.	MIT Utility Drawings	MIT_Utility_Plans_1997
Ashburton Pl	1892	Essex St	San.&Stm.	Sewer Volumes\Catchment_D10\Ashburton Pl	sew-16-22
Ashburton Pl	1920	Essex St	Utility	Utility Records\Historic Utilites\D10\Ashburton Pl	HUA-286
Ashburton Pl	1920	Essex St	Utility	Utility Records\Historic Utilites\D10\Ashburton Pl	HUA-057
Auburn St	1869	Pearl St to Brookline St	San.&Stm.	Sewer Volumes\Catchment_D10\Auburn St	sew-03-36
Auburn St	1884	Brookline St to Sidney St	San.&Stm.	Sewer Volumes\Catchment_D10\Auburn St	sew-11-41
Auburn St	1900	Brookline St to Sidney St	San.&Stm.	Sewer Volumes\Catchment_D10\Auburn St	sew-20-32
Auburn St	1871	River St to Magazine St	San.	Sewer Volumes\Catchment_D12\Auburn St	sew-05-33
Auburn St	1893	Magazine St to Pearl St	San.	Sewer Volumes\Catchment_D12\Auburn St	sew-06-46
Auburn St	1881	Pacific St to Mass Ave.	Utility	_Other Historical Plans\Catchment D10\Auburn St	6562
Auburn St	1935	River St to Brookline St	San.	_Other Historical Plans\Catchment D10\Auburn St	6838
Auburn St	1939	River St to Magazine St	San.	_Other Historical Plans\Catchment D12\Auburn St	7009
Auburn St	1965	Magazine St to River St	Utility	Utility Records\Gas Utility	CambridgeGasCo_1965Atlas_105
Auburn St	1965	Pearl St to Magazine St	Utility	Utility Records\Gas Utility	CambridgeGasCo_1965Atlas_106
Auburn St	1920	River St to Brookline St	Utility	Utility Records\Historic Utilites\D10\Auburn St	HUA-150
Auburn St	1920	Pearl St	Utility	Utility Records\Historic Utilites\D10\Auburn St	HUB-062
Auburn St	1920	Pleasant Ave to Brookline St	Utility	Utility Records\Historic Utilites\D12\Auburn St	HUA-150
Auburn St	1991	Pleasant St to Magazine St	Utility	Utility Records\Water Utility	WaterAtlas_1991_D6
Auburn St	1991	Pearl St to Magazine St	Utility	Utility Records\Water Utility	WaterAtlas_1991_D7
Auburn St	2005	River St to Magazine St	San.&Stm.	CMH3	AsBuilt_10.25.05
Auburn St	1973	Pearl St to Magazine St	San.&Stm.	Maguire Drawings\Auburn St	3
Auburn St	1974	Brookline St to Pearl St	San.&Stm.	Maguire Drawings\Auburn St	Phase01Contract03Sht03
Austin Pk	1922	Austin St.	San.&Stm.	Sewer Volumes\Catchment_D10\Austin Pk	sew-27-31
Bell St	1896	Allston St to Erie St	San.	Sewer Volumes\Catchment_D12\Bell St	sew-18-18
Bigelow St	1869	Main St to Harvard St.	San.&Stm.	Sewer Volumes\Catchment_D10\Bigelow St	str-04-50
Bigelow St	1920	Mass Ave to Harvard St	Utility	Utility Records\Historic Utilites\D10\Auburn St	HUA-254
Bigelow St	1895	Mass Ave	Utility	Utility Records\Historic Utilites\D10\Auburn St	HUB-074
Bishop Allen Dr.	1860	Inman St to Prospect St	San.&Stm.	Sewer Volumes\Catchment_D10\Bishop Allen Dr.	sew-02-13
Bishop Allen Dr.	1857	Prospect St to Essex St	San.&Stm.	Sewer Volumes\Catchment_D10\Bishop Allen Dr.	sew-02-42
Bishop Allen Dr.	1890	Prospect St to Norfolk St	San.&Stm.	Sewer Volumes\Catchment_D10\Bishop Allen Dr.	sew-15-31
Bishop Allen Dr.	1890	Douglass St to Main St	San.&Stm.	Sewer Volumes\Catchment_D10\Bishop Allen Dr.	sew-15-32
Bishop Allen Dr.	1937	Inman St to Norfolk St	San.	_Other Historical Plans\Catchment D10\Bishop Allen Drive	6957-2
Bishop Allen Dr.	2016	Norfolk St	GIS	_Other Historical Plans\Catchment D10\Bishop Allen Drive	9519
Bishop Allen Dr.	UNK	Prospect St to Essex St	San.&Stm.	_Other Historical Plans\Catchment D10\Bishop Allen Drive	9849
Bishop Allen Dr.	1895	Columbia St	Utility	Utility Records\Historic Utilites\D10\Bishop Allen Dr	HUB-058
Bishop Allen Dr.	1895	Inman St to Essex St	Utility	Utility Records\Historic Utilites\D10\Bishop Allen Dr	HUB-059
Bishop Allen Dr.	1895	Norfolk St to Main St	Utility	Utility Records\Historic Utilites\D10\Bishop Allen Dr	HUB-060
Blanche St	1999	Mass Ave to Green St	San&Stm.	University Park	UniversityParkAsbuilt2007
Brookline St	1857	Pilgrim St to Main St	San.&Stm.	Sewer Volumes\Catchment_D10\Brookline St	sew-01-35

Brookline St	1857	Valentine St to Pilgrim St	San.&Stm.	Sewer Volumes\Catchment_D10\Brookline St	sew-01-36
Brookline St	1857	Valentine St to Main St	San.&Stm.	Sewer Volumes\Catchment_D10\Brookline St	sew-02-34
Brookline St	1869	Valentine St to Erie St	San.&Stm.	Sewer Volumes\Catchment_D10\Brookline St	sew-03-37
Brookline St	1900	Green St to Lopez St	San.&Stm.	Sewer Volumes\Catchment_D10\Brookline St	sew-20-18
Brookline St	1900	Erie St to Pacific St	San.&Stm.	Sewer Volumes\Catchment_D10\Brookline St	sew-20-17
Brookline St	1900	Green St to Mass Ave	San.&Stm.	Sewer Volumes\Catchment_D10\Brookline St	sew-20-19
Brookline St	1883	Allston St to Erie St	San.	Sewer Volumes\Catchment_D12\Brookline St	sew-10-44
Brookline St	1885	Allston St to Chestnut St	San.	Sewer Volumes\Catchment_D12\Brookline St	sew-12-10
Brookline St	1900	Allston St ot Erie St	San.	Sewer Volumes\Catchment_D12\Brookline St	sew-20-16
Brookline St	1900	Erie St to Pacific St	San.&Stm.	Sewer Volumes\Catchment_D12\Brookline St	sew-20-17
Brookline St	1995	Franklin St to Mass Ave	Street Map	_Other Historical Plans\Catchment D10\Brookline St	CentralSquare-Bryant1995-Sheet12
Brookline St	UNK	Pacific St	Com.	_Other Historical Plans\Catchment D10\Brookline St	SewerDetail064_BrooklineAtPacific
Brookline St	2002	Granite to Henry	Stm.	Cambridgeport Roadway Improvements	CambridgeportRoadways-2003_44-Drain
Brookline St	UNK	Allston St ot Auburn St	Utility	Utility Records\Comcast Utility	377-530
Brookline St	1957	Emily St to Pacific St	Utility	Utility Records\Electric Utility	02_Page_31
Brookline St	1965	Lopez St to Auburn St	Utility	Utility Records\Electric Utility	02_Page_33
Brookline St	1965	Erie St to Watson St	Utility	Utility Records\Gas Utility	Brookline St Gas
Brookline St	1920	Franklin St to Pacific St	Utility	Utility Records\Historic Utilites\D10\Brookline St	HUA-111
Brookline St	UNK	Erie St to Putnam St	Utility	Utility Records\Historic Utilites\D10\Brookline St	HUA-112
Brookline St	UNK	Valentine St to Sidney St	Utility	Utility Records\Historic Utilites\D10\Brookline St	HUA-181
Brookline St	1895	Green St to Mass Ave	Utility	Utility Records\Historic Utilites\D10\Brookline St	HUA-060
Brookline St	1895	Green St to Mass Ave	Utility	Utility Records\Historic Utilites\D10\Brookline St	HUB-202
Brookline St	1895	Decatur St to Franklin St	Utility	Utility Records\Historic Utilites\D10\Brookline St	HUB-063
Brookline St	1895	Allston St to Emily St	Utility	Utility Records\Historic Utilites\D10\Brookline St	HUB-066
Brookline St	1895	Henry St to Putnam St	Utility	Utility Records\Historic Utilites\D12\Brookline St	HUB-069
Brookline St	1991	Decatur St to Mass Ave	Utility	Utility Records\Water Utility	WaterAtlas_1991_D7
Brookline St	UNK	Valentine St to Tudor St	San.&Stm.	CMH7\CMH7cad.zip\Existing Survey - CAD\DECATUR VALENTINE TUDOR EMILY SPERIDAKIS	PRELIMINARY DECATUR VALENTINE TUDOR EMILY SPERIDAKIS
Brookline St	UNK	Franklin St to Green St	San.&Stm.	CMH7\CMH7cad.zip\Existing Survey - CAD\FRANKLIN GREEN	PRELIMINARY FRANKLIN GREEN
Brookline St	1974	Auburn St to Valentine St	San.&Stm.	Maguire Drawings\Brookline	2
Brookline St	1973	Erie St to Putnam St	San.&Stm.	Maguire Drawings\Brookline	12
Chalk St	1873	Pleasant St	San.	Sewer Volumes\Catchment_D12\Chalk St	sew-06-16
Chalk St	UNK	Pleasant St to Magazine St	Utility	Utility Records\Comcast Utility	377-530
Chalk St	1965	Magazine St to Pleasant St	Utility	Utility Records\Gas Utility	CambridgeGasCo_1965Atlas_104
Chalk St	2005	Pleasant St to Magazine St	San.&Stm.	CMH3	AsBuilt_10.25.05
Chestnut St	1874	Pearl St to Brookline St	San.	Sewer Volumes\Catchment_D12\Chestnut St	sew-07-46
Chestnut St	1883	Brookline St to Waverly St	San.	Sewer Volumes\Catchment_D12\Chestnut St	sew-10-45
Chestnut St	1900	Sidney St to Waverly	San.	_Other Historical Plans\Catchment D12\Chestnut St	1388
Chestnut St	UNK	Sidney St to Waverly St	Utility	Utility Records\Historic Utilites\D12\Chestnut St	HUA-186
Chestnut St	1973	Pearl St to Brookline St	San.&Stm.	Maguire Drawings\Chestnut St	7
Clinton St	2009	Mass Ave	San.&Stm.	_Other Historical Plans\Catchment D10\Clinton St	CMH4-Asbuilt_C01A
Clinton St	1909	Mass Ave to Harvard St	San.&Stm.	Sewer Volumes\Catchment_D10\Clinton St	sew-25-26
Clinton St	1895	Mass Ave	Utility	Utility Records\Historic Utilites\D10\Clinton St	HUB-074
Corporal McTernan St	1871	Magazine St ot Pearl St	San.	Sewer Volumes\Catchment_D12\Corporal Mcternan St	sew-05-35
Corporal McTernan St	1877	Magazine St	San.	Sewer Volumes\Catchment_D12\Corporal Mcternan St	sew-09-36
Corporal McTernan St	UNK	Magazine St to Pearl St	Utility	Utility Records\Comcast Utility	377-530
Corporal McTernan St	1920	Magazine St ot Pearl St	Utility	Utility Records\Historic Utilites\D12\Corporal Mcternan St	HUA-164
Cottage St	1935	River to to Pearl St	San.	_Other Historical Plans\Catchment D10\Cottage St	6856
Cottage St	1873	Pearl St to Magazine St	San.	Sewer Volumes\Catchment_D12\Cottage St	sew-07-31
Cottage St	1881	Magazine St	San.	Sewer Volumes\Catchment_D12\Cottage St	sew-10-05
Cottage St	1885	River St	San.	Sewer Volumes\Catchment_D12\Cottage St	sew-12-23
Cottage St	1973	Pearl St to Magazine St	San.&Stm.	Sketches	MWRA Crossing (Sketch)
Cottage St	UNK	Magazine St to Pearl St	Utility	Utility Records\Comcast Utility	377-530
Cottage St	1965	Magazine St to Pleasant St	Utility	Utility Records\Gas Utility	CambridgeGasCo_1965Atlas_104
Cottage St	1965	Magazine St to River St	Utility	Utility Records\Gas Utility	CambridgeGasCo_1965Atlas_105
Cottage St	1965	Magazine St to Pearl St	Utility	Utility Records\Gas Utility	CambridgeGasCo_1965Atlas_106
Cottage St	1920	Magazine St to Pearl St	Utility	Utility Records\Historic Utilites\D10\Clinton St	HUA-153
Cottage St	1895	Magazine St to Pearl St	Utility	Utility Records\Historic Utilites\D10\Clinton St	HUB-062
Cottage St	1991	Pleasant St to Magazine St	Utility	Utility Records\Water Utility	WaterAtlas_1991_D6
Cottage St	2005	River St to Magazine St	San.&Stm.	CMH3	AsBuilt_10.25.05
Cottage St	1973	Pearl St to Magazine St	San.&Stm.	Maguire Drawings\Cottage St	4
Decatur St	1874	Pearl St to Brookline St	San.&Stm.	Sewer Volumes\Catchment_D10\Decatur St	sew-07-47
Decatur St	1935	Pearl St to Brookline St	San.	_Other Historical Plans\Catchment D10\Decatur St	6861
Decatur St	UNK	Pearl St to Brookline St	Utility	Utility Records\Comcast Utility	377-530
Decatur St	1965	Brookline St ot Pearl St	Utility	Utility Records\Gas Utility	Brookline St Gas
Decatur St	1920	Pearl St to Brookline St	Utility	Utility Records\Historic Utilites\D10\Decatur St	HUA-163
Decatur St	1991	Pearl St to Brookline St	Utility	Utility Records\Water Utility	WaterAtlas_1991_D7
Decatur St	UNK	Pearl St to Brookline St	San.&Stm.	CMH7\CMH7cad.zip\Existing Survey - CAD\DECATUR VALENTINE TUDOR EMILY SPERIDAKIS	PRELIMINARY DECATUR VALENTINE TUDOR EMILY SPERIDAKIS
Douglass St	1878	Main St to Bishop Allen Dr.	San.&Stm.	Sewer Volumes\Catchment_D10\Douglass St	sew-09-38
Douglass St	1900	Main St to Bishop Allen Dr.	San.&Stm.	Sewer Volumes\Catchment_D10\Douglass St	sew-20-19

Douglass St	1995	Mass Ave to Bishop Allen Dr.	Street Map	_Other Historical Plans\Catchment D10\Douglass St	CentralSquare-Bryant1995-Sheet15
Douglass St	1995	Bishop Allen Dr	Street Map	_Other Historical Plans\Catchment D10\Douglass St	CentralSquare-Bryant1995-Sheet18
Douglass St	1920	Mass Ave to Austin St	Utility	Utility Records\Historic Utilites\D10\Douglass St	HUA-287
Douglass St	1895	Mass Ave to Austin St	Utility	Utility Records\Historic Utilites\D10\Douglass St	HUB-060
Douglass Ct	1905	Douglass St	San.&Stm.	Sewer Volumes\Catchment_D10\Douglass St	sew-22-21
Doyle Way	2008	Inman St	San.&Stm.	_Other Historical Plans\Catchment D10\Doyle Way	CMH4-Asbuilt_C11
Emily St	1912/1917	Brookline St to Sidney St	San.&Stm.	Sewer Volumes\Catchment_D12\Emily St	sew-27-12
Emily St	UNK	Brookline St to Sidney St	Utility	Utility Records\Comcast Utility	377-530
Emily St	1920	Brookline St to Sidney St	Utility	Utility Records\Historic Utilites\D12\Emily St	
Emily St	UNK	Brookline St to Sidney St	San.&Stm.	CMH7\CMH7cad.zip\Existing Survey - CAD\DECATUR VALENTINE TUDOR EMILY SPERIDAKIS	PRELIMINARY DECATUR VALENTINE TUDOR EMILY SPERIDAKIS
Endicott St	1961	Vassar St to Memorial Dr	Stm.	_Other Historical Plans\Catchment D10\Endicott St	EndicottSt-RiverIntakeDischarge-1961-A
Endicott St	1899		San.&Stm.	Sewer Volumes\Catchment_D10\Endicott St	sew-20-22
Endicott St	UNK	Vassar St to Amherst Alley	Utility	Utility Records\Historic Utilites\D10\Endicott St	HUA-221
Endicott St	UNK	Amherst St	San.&Stm.	Cambridgeport Roadways	ALL00F\$
Endicott St	1997	Endicott St	San.&Stm.	MIT Utility Drawings	MIT_Utility_Plans_1997
Erie St	1983	Albany St to Waverly St	Street Map	_Other Historical Plans\Catchment D12\Erie St	WaverlyStreetReconstruction-1983_Sht04
Erie St	2000	Sidney to Albany	Stm.	Cambridgeport Roadway Improvements	CambridgeportRoadways-2003_74-Drain
Erie St	2002	Waverly St	Stm.	Cambridgeport Roadway Improvements	CambridgeportRoadways-2003_76-DrainStructure
Erie St	2002	Sidney St	Stm.	Cambridgeport Roadway Improvements	CambridgeportRoadways-2003_77-DrainStructure
Erie St	2014		Stm.	Erie St Sewer Separation	CMH4 Erie and Pearl Sheet C-1
Erie St	2014	Pearl St	Stm.	Erie St Sewer Separation	CMH4 Erie and Pearl Sheet C-2
Erie St	1873	Magazine St to Pearl St	San.	Sewer Volumes\Catchment_D12\Erie St	sew-06-20
Erie St	1873	Pearl St to Brookline St	San.	Sewer Volumes\Catchment_D12\Erie St	sew-06-25
Erie St	1901	Brookline St to Albany St	San.&Stm.	Sewer Volumes\Catchment_D12\Erie St	sew-20-49
Erie St	1912	Pearl St to Brookline St	San.&Stm.	Sewer Volumes\Catchment_D12\Erie St	sew-26-22
Erie St	UNK	Magazine St to Sidney St	Utility	Utility Records\Comcast Utility	377-530
Erie St	1965	Brookline St to Pearl St	Utility	Utility Records\Gas Utility	Brookline St Gas
Erie St	1920	Sidney St to Brookline St	Utility	Utility Records\Historic Utilites\D12\Erie St	HUA-179
Erie St	UNK	Sidney St to Waverly St	San.&Stm.	Cambridgeport Roadways	Proposed
Erie St	UNK	Sidney St to Waverly St	San.&Stm.	Cambridgeport Roadways	Survey
Essex St	1883	Main St to Bishop Allen Dr.	San.&Stm.	Sewer Volumes\Catchment_D10\Essex St	sew-11-01
Essex St	1892	Bishop Allen Dr to Harvard St	San.&Stm.	Sewer Volumes\Catchment_D10\Essex St	sew-16-24
Essex St	1949	Bishop Allen Dr to Harvard St	San.	_Other Historical Plans\Catchment D10\Essex St	7285
Essex St	1995	Mass Ave to Bishop Allen Dr.	Street Map	_Other Historical Plans\Catchment D10\Essex St	CentralSquare-Bryant1995-Sheet13
Essex St	1920	Mass Ave to Bishop Allen Dr.	Utility	Utility Records\Historic Utilites\D10\Essex St	HUA-281
Essex St	1920	Percy Place to Harvard St	Utility	Utility Records\Historic Utilites\D10\Essex St	HUA-282
Essex St	1895	Harvard St to Bishop Allen Dr	Utility	Utility Records\Historic Utilites\D10\Essex St	HUB-057
Essex St	1895	Mass Ave to Bishop Allen Dr.	Utility	Utility Records\Historic Utilites\D10\Essex St	HUB-059
Fairmont St	1873	Pleasant St to Magazine St	San.	Sewer Volumes\Catchment_D12\Fairmont St	sew-07-08
Fairmont St	UNK	Pleasant St to Magazine St	Utility	Utility Records\Comcast Utility	377-530
Fairmont St	1965	Magazine St to Pleasant St	Utility	Utility Records\Gas Utility	CambridgeGasCo_1965Atlas_104
Fairmont St	1920	Allston St to Fairmont St	Utility	Utility Records\Historic Utilites\D12\Fairmont St	HUA-182
Fairmont St	2005	Pleasant St to Magazine St	San.&Stm.	CMH3	AsBuilt_10.25.05
Franklin St	1870	Pearl St to Brookline St	San.&Stm.	Sewer Volumes\Catchment_D10\Franklin St	sew-04-41
Franklin St	1873	Brookline St to Sidney St	San.&Stm.	Sewer Volumes\Catchment_D10\Franklin St	sew-06-32
Franklin St	1873	Magazine St to Pearl St	San.&Stm.	Sewer Volumes\Catchment_D10\Franklin St	sew-06-33
Franklin St	1903	Sidney St to Landsdowne St	San.&Stm.	Sewer Volumes\Catchment_D10\Franklin St	sew-21-03
Franklin St	1911	Blanche St to Landsdowne St	San.&Stm.	Sewer Volumes\Catchment_D10\Franklin St	sew-24-26
Franklin St	1935	Magazine St to Brookline	San.	_Other Historical Plans\Catchment D10\Franklin St	6873 (1)
Franklin St	1935	Brookline to Sidney St	San.&Stm.	_Other Historical Plans\Catchment D10\Franklin St	6919
Franklin St	1999	Sidney St to Landsdowne St	San.&Stm.	University Park	UniversityParkAsbuilt2007
Franklin St	1999	Sidney St to Brookline Place	San.&Stm.	University Park	UniversityParkAsbuilt2007
Franklin St	1965	Magazine St to River St	Utility	Utility Records\Gas Utility	CambridgeGasCo_1965Atlas_105
Franklin St	1965	Pearl St to Magazine St	Utility	Utility Records\Gas Utility	CambridgeGasCo_1965Atlas_106
Franklin St	1920	Western Ave to Magazine St	Utility	Utility Records\Historic Utilites\D10\Franklin St	HUA-148
Franklin St	1920	Sidney St to Blanche St	Utility	Utility Records\Historic Utilites\D10\Franklin St	HUA-149
Franklin St	1991	Pearl St to Sidney St	Utility	Utility Records\Water Utility	WaterAtlas_1991_D7
Franklin St	UNK	Pearl St to Brookline St	San.&Stm.	CMH7\CMH7cad.zip\Existing Survey - CAD\FRANKLIN GREEN	PRELIMINARY FRANKLIN GREEN
Green St	1863	Magazine St to Pearl St	San.&Stm.	Sewer Volumes\Catchment_D10\Green St	sew-01-41
Green St	1875	Pearl St to Brookline St	San.&Stm.	Sewer Volumes\Catchment_D10\Green St	sew-08-49
Green St	1910	Magazine St to Pearl St	San.&Stm.	Sewer Volumes\Catchment_D10\Green St	sew-25-14
Green St	1910	Mass Ave to Pearl St	San.	_Other Historical Plans\Catchment D10\Green St	4706
Green St	1995	Magazine St to Pearl St	Street Map	_Other Historical Plans\Catchment D10\Green St	CentralSquare-Bryant1995-Sheet09
Green St	1996	Pearl St to Brookline St	Street Map	_Other Historical Plans\Catchment D10\Green St	CentralSquare-Bryant1995-Sheet10
Green St	1999	Sidney St to Landsdowne St	San.&Stm.	University Park	UniversityParkAsbuilt2007
Green St	1965	Pearl St to Magazine St	Utility	Utility Records\Gas Utility	CambridgeGasCo_1965Atlas_106
Green St	1920	Pearl St to Landsdowne St	Utility	Utility Records\Historic Utilites\D10\Green St	HUA-146
Green St	1991	Pearl St to Landsdowne St	Utility	Utility Records\Water Utility	WaterAtlas_1991_D7
Green St	UNK	Brookline St to Sidney St	San.&Stm.	CMH7\CMH7cad.zip\Existing Survey - CAD\FRANKLIN GREEN	PRELIMINARY FRANKLIN GREEN

Grove Ave	1896	Putnam Ave to Allston St	San.	Sewer Volumes\Catchment_D12\Grove Ave	sew-18-38
Grove Ave	UNK	Putnam Ave to Allston St	Utility	Utility Records\Historic Utilites\D12\Grove Ave	HUA-179
Grove Ave	UNK	Allston St to Putnam Ave	San.&Stm.	Cambridgeport Roadways	Proposed
Hamilton St	1938	Magazine St to Pearl St	San.	_Other Historical Plans\Catchment D12\Hamilton St	6964
Hamilton St	1884	Magazine St to Brookline	San.	Sewer Volumes\Catchment_D12\Hamilton St	sew-01-14
Hamilton St	1891	Brookline St ot Sidney St	San.&Stm.	Sewer Volumes\Catchment_D12\Hamilton St	sew-15-40
Hamilton St	1912	Magazine St to Pearl St	San.	Sewer Volumes\Catchment_D12\Hamilton St	sew-25-30
Hamilton St	UNK	Magazine St to Sidney St	Utility	Utility Records\Comcast Utility	377-530
Hamilton St	1920	Magazine St to Sidney St	Utility	Utility Records\Historic Utilites\D12\Hamilton St	HUA-180
Hamilton St	2000	Magazine St	San.&Stm.	CMH2	18
Hamilton St	2000	Magazine St	San.&Stm.	CMH2	c_05_asbuilt_dpw - Shortcut
Hamilton St	UNK	Brookline St to Sidney St	San.&Stm.	CMH7\CMH7cad.zip\Existing Survey - CAD\HAMILTON STREET	PRELIMINARY HAMILTON STREET
Hamilton St	1973	Pearl St ot Brookline St	San.&Stm.	Maguire Drawings\Hamilton St	Phase01Contract01Sht07
Henry St	2000	Sidney St	Stm.	Cambridgeport Roadway Improvements	CambridgeportRoadways-2003_48-Drain
Henry St	1886	Brookline St to Sidney St	San.	Sewer Volumes\Catchment_D12\Hamilton St	sew-12-41
Henry St	1888	Sidney St to Waverly St	San.	Sewer Volumes\Catchment_D12\Hamilton St	sew-13-42
Henry St	1895	Brookline St to Sidney St	Utility	Utility Records\Historic Utilites\D12\Henry St	HUB-069
Henry St	UNK	Brookline St to Sidney St	San.&Stm.	Cambridgeport Roadways	Proposed
Henry St	UNK	Brookline St to Sidney St	San.&Stm.	Cambridgeport Roadways	Survey
Inman St	1870	Main St to Bishop Allen Dr.	San.&Stm.	_Other Historical Plans\Catchment D10\Inman St	sew-05-33
Inman St	2008	Mass Ave to Bishop Allen Dr.	San.&Stm.	_Other Historical Plans\Catchment D10\Inman St	CMH4-Asbuilt_C11 (1)
Inman St	1920	Mass Ave to Broadway St	Utility	Utility Records\Historic Utilites\D10\Inman St	HUA-253
Kelly Rd		Pleasant St to Magazine St	San.&Stm.	_Other Historical Plans\Catchment D12\Kelly Rd	7031
Kelly Rd	1872	Pleasant St to Magazine St	San.	Sewer Volumes\Catchment_D12\Kelly Rd	sew-06-44
Kelly Rd	UNK	Pleasant St to Magazine St	Utility	Utility Records\Comcast Utility	377-530
Kelly Rd	1965	Magazine St to Pleasant St	Utility	Utility Records\Gas Utility	CambridgeGasCo_1965Atlas_104
Kelly Rd	2005	Pleasant St to Magazine St	San.&Stm.	Pleasant St to Magazine St	AsBuilt_10.25.05
Kelly Rd	1974	River St to Pleasant St	San.&Stm.	Maguire Drawings\Kelly Rd	8
Lawrence St	1897	Magazine St to Pearl St	San.	Sewer Volumes\Catchment_D12\Lawrence St	sew-09-50
Lawrence St	UNK	Magazine St to Pearl St	Utility	Utility Records\Comcast Utility	377-530
Lawrence St	1920	Magazine St to Pearl St	Utility	Utility Records\Historic Utilites\D12\Lawrence St	HUA-164
Lopez St	1873	Pearl St to Brookline St	San.&Stm.	Sewer Volumes\Catchment_D10\Lopez St	sew-07-30
Lopez St	UNK	Pearl St to Brookline St	Utility	Utility Records\Comcast Utility	377-530
Lopez St	1965	Brookline St to Pearl St	Utility	Utility Records\Gas Utility	Brookline St Gas
Lopez St	1920	Pearl St to Brookline St	Utility	Utility Records\Historic Utilites\D10\Lopez St	HUA-102
Lopez St	1991	Pearl St to Brookline St	Utility	Utility Records\Water Utility	WaterAtlas_1991_D7
Lopez St	1974	Brookline St to Pearl St	San.&Stm.	Maguire Drawings\Lopez St	4
Magazine St	1939	Hamilton St to Perry St	San.	_Other Historical Plans\Catchment D12\Magazine St	6990-C
Magazine St	1939	Perry St to Franklin St	San.	_Other Historical Plans\Catchment D12\Magazine St	6990D
Magazine St	1884	Allston St to Lake St	San.	Sewer Volumes\Catchment_D12\Magazine St	sew-01-13
Magazine St	1896	Franklin St to Cottage St	San.	Sewer Volumes\Catchment_D12\Magazine St	sew-03-02
Magazine St	1866	Park St to Cottage St	San.	Sewer Volumes\Catchment_D12\Magazine St	sew-03-03
Magazine St	UNK	Florence St to Upton St	Utility	Utility Records\Comcast Utility	377-530
Magazine St	1929	Lawrence St to Cottage St	Utility	Utility Records\Electric Utility	05_Page_77
Magazine St	1927	Cottage St to Auburn St	Utility	Utility Records\Electric Utility	05_Page_78
Magazine St	1965	Fairmont St to Cottage St	Utility	Utility Records\Gas Utility	CambridgeGasCo_1965Atlas_104
Magazine St	1965	Cottage St to Mass Ave	Utility	Utility Records\Gas Utility	CambridgeGasCo_1965Atlas_106
Magazine St	1920	Kelly Rd to River St	Utility	Utility Records\Historic Utilites\D12\Magazine St	HUA-103
Magazine St	1920	Florence St to Lake St	Utility	Utility Records\Historic Utilites\D12\Magazine St	HUA-104
Magazine St	1895	Upton St to Franklin St	Utility	Utility Records\Historic Utilites\D12\Magazine St	HUB-061
Magazine St	1991	Perry St to Mass Ave	Utility	Utility Records\Water Utility	WaterAtlas_1991_D6
Magazine St	2000	Prince St to Hamilton St	San.&Stm.	CMH2	18
Magazine St	2000	Prince St to Hamilton St	San.&Stm.	CMH2	c_05_asbuilt_dpw - Shortcut
Magazine St	2005	Allston to Perry St	San.&Stm.	CMH3	AsBuilt_10.25.05
Mass Ave	1866	Lee St to Inman St	San.&Stm.	Sewer Volumes\Catchment_D10\Massachusetts Ave	sew-03-05
Mass Ave	1852	Prospect St to Douglass St	San.&Stm.	Sewer Volumes\Catchment_D10\Massachusetts Ave	sew-02-33
Mass Ave	1888	Inman St to Essex St	San.&Stm.	Sewer Volumes\Catchment_D10\Massachusetts Ave	sew-14-43
Mass Ave	1888	Pearl St to Columbia St	San.&Stm.	Sewer Volumes\Catchment_D10\Massachusetts Ave	sew-14-44
Mass Ave	1900	Columbia St to Sidney St	San.&Stm.	Sewer Volumes\Catchment_D10\Massachusetts Ave	sew-20-23
Mass Ave	1910	Essex St to Douglass St	San.&Stm.	Sewer Volumes\Catchment_D10\Massachusetts Ave	sew-25-01
Mass Ave	1910	Bigelow St to Essex St	San.&Stm.	Sewer Volumes\Catchment_D10\Massachusetts Ave	sew-25-02
Mass Ave	1910	Hancock St to Bigelow St	San.&Stm.	Sewer Volumes\Catchment_D10\Massachusetts Ave	sew-25-03
Mass Ave	1858	Mass Ave to Bishop Allen Dr.	San.&Stm.	Sewer Volumes\Catchment_D10\Massachusetts Ave	sew-02-07
Mass Ave	2008	Clinton St to Bigelow St.	San.&Stm.	_Other Historical Plans\Catchment D10\Mass Ave	CMH4-Asbuilt_C01B
Mass Ave	1910	Norfolk St to Douglass St		MBTA\Mass Ave	3, 10
Mass Ave	UNK	Temple St to Essex St	Utility	Utility Records\Electric Utility	06_Page_11
Mass Ave	1984	Temple St to Prospect St	Utility	Utility Records\Electric Utility	11_Page_09
Mass Ave	1895	Norfolk St to Blanche St	Utility	Utility Records\Historic Utilites\D10\Massachusetts Ave	HUB-060
Mass Ave	1895	Hancock St to Inman St	Utility	Utility Records\Historic Utilites\D10\Massachusetts Ave	HUB-074
Mass Ave	1895	Hancock St to Inman St	Utility	Utility Records\Historic Utilites\D10\Massachusetts Ave	HUB-207
Mass Ave	1991	Pearl St to Green St	Utility	Utility Records\Water Utility	WaterAtlas_1991_D7
Norfolk St	1856	Washington St to Suffolk St	San.&Stm.	Sewer Volumes\Catchment_D10\Norfolk St	sew-02-19
Norfolk St	1870	Suffolk St to Harvard St	San.&Stm.	Sewer Volumes\Catchment_D10\Norfolk St	sew-04-40
Norfolk St	1896	Mass Ave to Worchester St	San.&Stm.	Sewer Volumes\Catchment_D10\Norfolk St	sew-18-12
Norfolk St	1896	Braodway St to Worchester St	San.&Stm.	Sewer Volumes\Catchment_D10\Norfolk St	sew-18-13
Norfolk St	1938	Mass Ave to Harvard St	San.&Stm.	_Other Historical Plans\Catchment D10\Norfolk St	6967

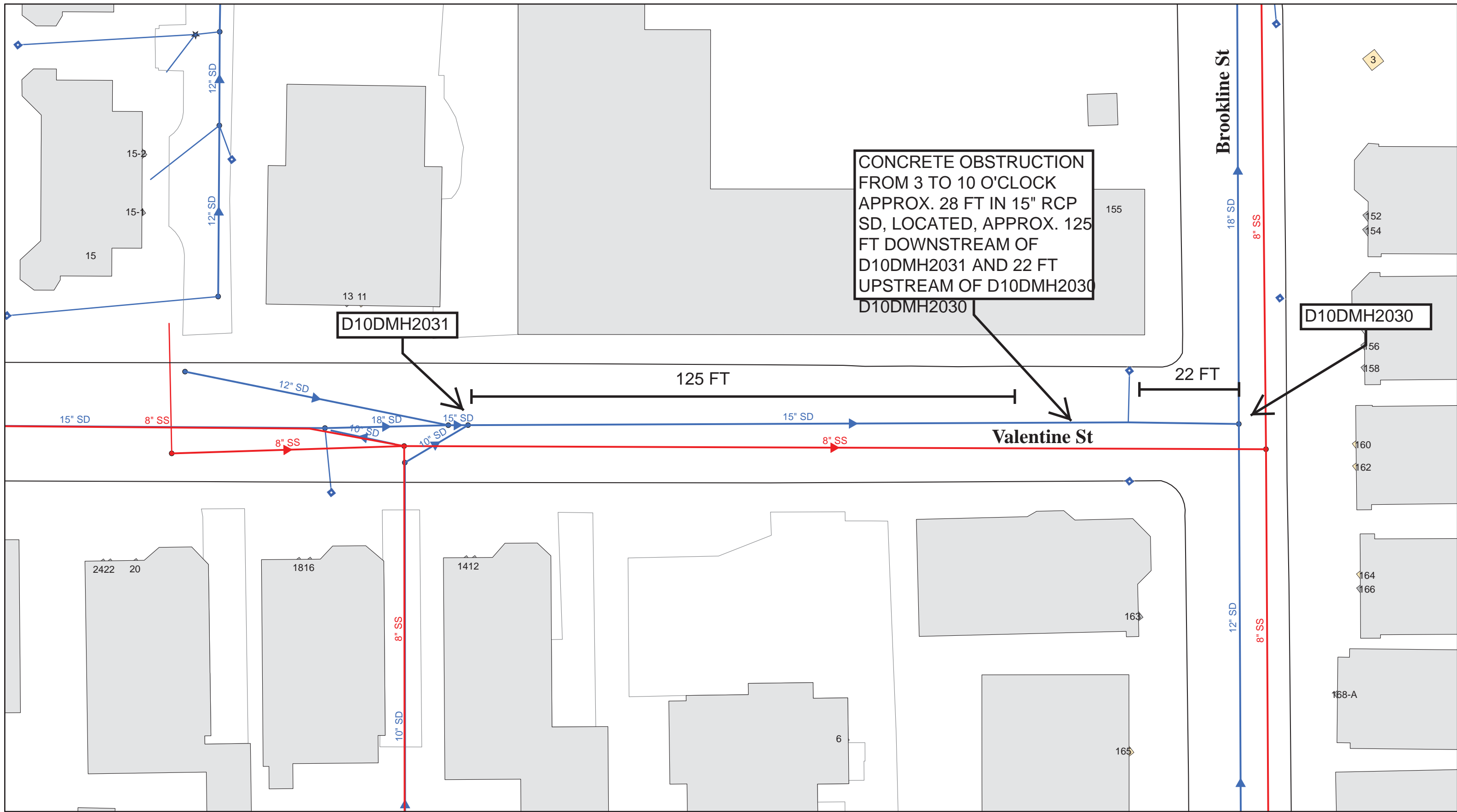
Norfolk St	1995	Mass Ave to Bishop Allen Dr.	Street Map	_Other Historical Plans\Catchment D10\Norfolk St	CentralSquare-Bryant1995-Sheet14
Norfolk St	1920	Mass Ave to Worchester St	Utility	Utility Records\Historic Utilites\D10\Norfolk St	HUA-282
Norfolk St	1895	Harvard St to Bishop Allen Dr	Utility	Utility Records\Historic Utilites\D10\Norfolk St	HUA-057
Norfolk St	1895	Mass Ave to Bishop Allen Dr.	Utility	Utility Records\Historic Utilites\D10\Norfolk St	HUB-060
Pacific St	1899	Brookline St to Sidney St	San.&Stm.	Sewer Volumes\Catchment_D10\Pacific St	sew-20-20
Pacific St	1899	Albany St to Vassar St.	San.&Stm.	Sewer Volumes\Catchment_D10\Pacific St	sew-20-21
Pacific St	UNK	Brookline St	Com.	_Other Historical Plans\Catchment D10\Pacific St	SewerDetail064_BrooklineAtPacific
Pacific St	1999	Sidney St to Brookline Place	San.&Stm.	University Park	UniversityParkAsbuilt2007
Pacific St	1987	Brookline St	Utility	Utility Records\Electric Utility	08_Page_026
Pacific St	1895	Pacific St	Utility	Utility Records\Historic Utilites\D10\Albany St	HUB-044
Pacific St	1920	Albany St to Sidney St	Utility	Utility Records\Historic Utilites\D10\Pacific St	HUA-157
Pacific St	1895	Sidney St to Albany St	Utility	Utility Records\Historic Utilites\D10\Pacific St	HUB-044
Pacific St	1895	Brookline St to Sidney St	Utility	Utility Records\Historic Utilites\D10\Pacific St	HUB-063
Pacific St	1991	Brookline St to Albany St	Utility	Utility Records\Water Utility	WaterAtlas_1991_D7
Pacific St	1999	Sidney St to Brookline Place	San.&Stm.	_Other Historical Plans\Catchment D10\Pacific St	30 Pilgrim Street - Site Plan 19990325
Pacific St	2000	Waverly St to Sidney St	San.&Stm.	_Other Historical Plans\Catchment D10\Pacific St	70PacificSt_ExistingConditions20001122
Pacific St	2001	Waverly St to Sidney St	San.&Stm.	_Other Historical Plans\Catchment D10\Pacific St	70PacificStreet_SitePlan20010124
Pacific St	2000	Sidney St to Landsdowne St	San.&Stm.	_Other Historical Plans\Catchment D10\Pacific St	88SidneySt_SitePlan C1 20000317
Pacific St	2000	Sidney St to Landsdowne St	San.&Stm.	_Other Historical Plans\Catchment D10\Pacific St	88SidneySt_SitePlan C2 20001120
Pacific St	2000	Sidney St to Landsdowne St	San.&Stm.	_Other Historical Plans\Catchment D10\Pacific St	88SidneySt_SitePlan C3 20001120
Pacific St	2000	Sidney St to Landsdowne St	San.&Stm.	_Other Historical Plans\Catchment D10\Pacific St	88SidneySt_UtilityPlan C5 20001120
Pacific St	2000	Sidney St to Landsdowne St	San.&Stm.	_Other Historical Plans\Catchment D10\Pacific St	88SidneySt-UtilityPlan-20000317
Pacific St	2003	Landsdowne St to Purrington St	San.&Stm.	_Other Historical Plans\Catchment D10\Pacific St	100Landsdowne_UtilitySitePlan20030713
Pacific St	UNK	Waverly St to Albany St	Stm.	_Other Historical Plans\Catchment D10\Pacific St	235AlbanySt_GradingDrainageSitePlan20061108
Pacific St	2010	Sidney St to Purrington St	San.&Stm.	_Other Historical Plans\Catchment D10\Pacific St	ForestCity-Apr2000-U02-PacificPilgrimStExistingConditions
Pacific St	2009	Albany St	San.&Stm.	_Other Historical Plans\Catchment D10\Pacific St	SurfaceUtilityAsbuilt_AlbanyPacific20090605
Pacific St	UNK	Sydney St/Landsdowne St	San.&Stm.	Maguire Drawings\Pacific St	PacificStreetSewer1993-Sht02
Pacific St	UNK	Sidney St to Landsdowne St	San.&Stm.	Cambridgeport Roadways	Survey
Pacific St	2001	Waverly St to Vasser St	San.&Stm.	Cambridgeport Roadways	ALL00F\$
Pacific St	2001	Albany St to Vassar St.	San.&Stm.	MIT Utility Drawings	MIT Utility_1_2016
Pacific St	2001	Sidney St to Vassar St	San.&Stm.	MIT Utility Drawings	MIT Utility_2_2016
Pearl St	1856	Mass Ave to Franklin St	Stm.	Sewer Volumes\Catchment_D10\Pearl St	sew-02-06
Pearl St	1910	Green St to Mass Ave	San.&Stm.	Sewer Volumes\Catchment_D10\Pearl St	sew-25-14
Pearl St	2016	William St to Franklin St	Stm.	_Other Historical Plans\Catchment D12\Pearl St	Ch90_Cont19_201601_Sht12
Pearl St	1884	Hamilton St to Perry St	San.	Sewer Volumes\Catchment_D12\Pearl St.	sew-01-11
Pearl St	1869	Decatur St to Auburn St	San.	Sewer Volumes\Catchment_D12\Pearl St.	sew-03-35
Pearl St	1872	Hamilton St to Walnut St	San.	Sewer Volumes\Catchment_D12\Pearl St.	sew-06-13
Pearl St	1912	Hamilton St to Erie St	San.&Stm.	Sewer Volumes\Catchment_D12\Pearl St.	sew-26-22
Pearl St	1924	Erie St to Cottage St	San.&Stm.	Sewer Volumes\Catchment_D12\Pearl St.	sew-27-01
Pearl St	UNK	Putnam Ave to William St	Utility	Utility Records\Comcast Utility	377-530
Pearl St	1965	Cottage St to Mass Ave	Utility	Utility Records\Gas Utility	CambridgeGasCo_1965Atlas_106
Pearl St	1920	Franklin St to Cottage St	Utility	Utility Records\Historic Utilites\D10\Pearl St	HUA-108
Pearl St	1991	Decatur St to Mass Ave	Utility	Utility Records\Water Utility	WaterAtlas_1991_D7
Pearl St	UNK	Corporal Mcternan to Perry St	San.&Stm.	CMH7\CMH7cad.zip\Existing Survey - CAD\DECATUR VALENTINE TUDOR EMILY SPERIDAKIS	PRELIMINARY DECATUR VALENTINE TUDOR EMILY SPERIDAKIS
Pearl St	1973	Speridakis St to William St	San.&Stm.	Maguire Drawings\Pearl St	2
Pearl St	1973	Auburn St to Franklin St	San.&Stm.	Maguire Drawings\Pearl St	3
Percy Pl	1920	Essex St	Utility	Utility Records\Historic Utilites\D10\Percy Pl	HUA-286
Percy Pl	1895	Essex St	Utility	Utility Records\Historic Utilites\D10\Percy Pl	HUB-057
Perry St	1874	Magazine St to Pearl St	San.	Sewer Volumes\Catchment_D12\Pearl St.	sew-08-08
Perry St	UNK	Magazine St to Pearl St	Utility	Utility Records\Comcast Utility	377-530
Perry St	1965	Erie St to Watson St	Utility	Utility Records\Gas Utility	Brookline St Gas
Perry St	1920	Magazine St to Pearl St	Utility	Utility Records\Historic Utilites\D12\Perry St	HUA-163
Peters St	1896	Putnam Ave to Allston St	San.	Sewer Volumes\Catchment_D12\Pearl St.	sew-20-01
Pilgrim St	1874	Sidney St	San.&Stm.	Sewer Volumes\Catchment_D10\Pilgrim St	sew-08-31
Pilgrim St	1874	Brookline St	San.&Stm.	Sewer Volumes\Catchment_D10\Pilgrim St	sew-13-02
Pilgrim St	1900	Brookline St to Sidney St	San.&Stm.	Sewer Volumes\Catchment_D10\Pilgrim St	sew-20-33
Pilgrim St	1906	Sidney St to Landsowne St	San.&Stm.	Sewer Volumes\Catchment_D10\Pilgrim St	sew-23-47
Pilgrim St	1920	Brookline St to Landsowne St	Utility	Utility Records\Historic Utilites\D10\Pilgrim St	HUA-155
Pilgrim St	1895	Brookline St to Sidney St	Utility	Utility Records\Historic Utilites\D10\Pilgrim St	HUB-063
Prince St	UNK	Pleasant St to Magazine St	Utility	Utility Records\Comcast Utility	377-530
Prince St	2000	Magazine St	San.&Stm.	CMH2	18
Prince St	2000	Magazine St	San.&Stm.	CMH2	c_05_asbuilt_dpw - Shortcut
Prince St	2000	Pleasant St	San.&Stm.	CMH2	18
Prince St	2000	Pleasant St	San.&Stm.	CMH2	c_05_asbuilt_dpw - Shortcut
Prospect St	1877	Mass Ave to Bishop Allen Dr.	San.&Stm.	Sewer Volumes\Catchment_D10\Prospect St	sew-09-29
Prospect St	1857	Bishop Allen Drive	Stm.	Sewer Volumes\Catchment_D10\Prospect St	sew-02-42
Prospect St	1920	Mass Ave to Harvard St	Utility	Utility Records\Historic Utilites\D10\Prospect St	HUA-278
Prospect St	1895	St Paul St to Broadway St	Utility	Utility Records\Historic Utilites\D10\Prospect St	HUB-056
Prospect St	1895	Mass Ave to Bishop Allen Dr.	Utility	Utility Records\Historic Utilites\D10\Prospect St	HUB-059
Putnam Ave	2000	Sidney St to Waverly St	Stm.	Cambridgeport Roadway Improvements	CambridgeportRoadways-2003_69-Drain
Putnam Ave	2009	Flagg St to Kinnaird St	Stm.	CMH4	CMH4_FinalStampedRecDwgs_11-19-12
Putnam Ave	1875	Magazine St to Pearl St	San.	Sewer Volumes\Catchment_D12\Putnam Ave	sew-08-39
Putnam Ave	1881	Waverly St	San.	Sewer Volumes\Catchment_D12\Putnam Ave	sew-10-10
Putnam Ave	1882	Sidney St to Waverly St	San.	Sewer Volumes\Catchment_D12\Putnam Ave	sew-10-36

Putnam Ave	1885	Pearl St to Brookline St	San.	Sewer Volumes\Catchment_D12\Putnam Ave	sew-12-19
Putnam Ave	1885	Brookline St to Sidney St	San.	Sewer Volumes\Catchment_D12\Putnam Ave	sew-12-33
Putnam Ave	1920	River St to Magazine St	Utility	Utility Records\Historic Utilites\D12\Putnam Ave	HUA-142
Putnam Ave	1895	Brookline St to Sidney St	Utility	Utility Records\Historic Utilites\D12\Putnam Ave	HUB-069
Putnam Ave	UNK	Sidney St to Grove Ave	San.&Stm.	Cambridgeport Roadways	Proposed
Putnam Ave	UNK	Sidney St to Waverly St	San.&Stm.	Cambridgeport Roadways	Survey
Putnam Ct	1895	Putnam Ave	Utility	Utility Records\Historic Utilites\D12\Putnam Ct	HUB-069
River St	1894	Pleasant St to Franklin St	San.&Stm.	Sewer Volumes\Catchment_D10\River St	sew-17-24
River St	1857	Pleasant St to Western Ave	Stm.	Sewer Volumes\Catchment_D10\River St	sew-02-40
River St	1894	Franklin St to Mass Ave	San.	Sewer Volumes\Catchment_D10\River St	sew-17-25
River St	1935	William St	San.	_Other Historical Plans\Catchment D10\River St	6933
River St	1986	Auburn St to Green St		_Other Historical Plans\Catchment D10\River St	CentralSquare1986_TopoSitePlan
River St	1927	Cottage St to Auburn St	Utility	Utility Records\Electric Utility	09_Page_008
River St	1895	Cottage St to Franklin St	Utility	Utility Records\Historic Utilites\D10\River St	HUB-061
Salem St	1877	Watson St. to Auburn St.	San.	Sewer Volumes\Catchment_D10\Salem St	sew-09-32
Salem St	1920	Auburn St to Watson St	Utility	Utility Records\Historic Utilites\D10\Salem St	HUA-149
Salem St	1895	Watson St to Auburn St	Utility	Utility Records\Historic Utilites\D10\Salem St	HUB-062
Salem St	1974	Auburn St to Watson St	San.&Stm.	Maguire Drawings\Salem St	4
Sidney St	1870	Front St to Auburn St	San	Sewer Volumes\Catchment_D10\Sidney St	sew-05-30
Sidney St	1881	Green St to Pilgrim St	San.	Sewer Volumes\Catchment_D10\Sidney St	sew-10-14
Sidney St	1874	Pilgrim St	San.	Sewer Volumes\Catchment_D10\Sidney St	sew-08-31
Sidney St	1870	Front St to Auburn St	San.&Stm.	Sewer Volumes\Catchment_D10\Sidney St	sew-05-30
Sidney St	1900	Pacific St to Auburn St	San.&Stm.	Sewer Volumes\Catchment_D10\Sidney St	sew-20-28
Sidney St	1900	Auburn St to Mass Ave	San.	Sewer Volumes\Catchment_D10\Sidney St	sew-20-29
Sidney St	1906	Erie St to Pacific St	San.&Stm.	Sewer Volumes\Catchment_D10\Sidney St	sew-23-45
Sidney St	1881	Pacific St to Mass Ave.	Utility	_Other Historical Plans\Catchment D10\Sydney St	6562
Sidney St	UNK	Landsdowne St	San.	_Other Historical Plans\Catchment D10\Sydney St	PacificStreetSewer1993-Sht02 (2)
Sidney St	2000	Henry St to Chestnut St	Stm.	Cambridgeport Roadway Improvements	CambridgeportRoadways-2003_50-Drain
Sidney St	2000	Putnam Ave to Allston St	Stm.	Cambridgeport Roadway Improvements	CambridgeportRoadways-2003_52-Drain
Sidney St	2000	Hamilton St to Merriam St	San.&Stm.	Cambridgeport Roadway Improvements	CambridgeportRoadways-2003_54-Drain
Sidney St	2000	Emily St to Pacific St	San.&Stm.	Cambridgeport Roadway Improvements	CambridgeportRoadways-2003_56-Drain
Sidney St	2000	Erie St	San.&Stm.	Cambridgeport Roadway Improvements	CambridgeportRoadways-2003_58-Drain
Sidney St	1882	Henry St to Putnam St	San.	Sewer Volumes\Catchment_D12\Sidney St	sew-10-37
Sidney St	1891	Allston St to Erie St	San.	Sewer Volumes\Catchment_D12\Sidney St	sew-15-39
Sidney St	1902	Hamilton St to Erie St	San.&Stm.	Sewer Volumes\Catchment_D12\Sidney St	sew-21-03
Sidney St	1906	Erie St to Pacific St	San.&Stm.	Sewer Volumes\Catchment_D12\Sidney St	sew-23-45
Sidney St	1999	Mass Ave to Franklin St	San.&Stm.	University Park	UniversityParkAsbuil2007
Sidney St	UNK	Erie St to Tudor St	Utility	Utility Records\Comcast Utility	377-530
Sidney St	1920	Mass Ave to Emily St	Utility	Utility Records\Historic Utilites\D10\Sidney St	HUA-114
Sidney St	1895	Tudor St to Franklin St	Utility	Utility Records\Historic Utilites\D10\Sidney St	HUB-063
Sidney St	1920	Putnam Ave to Erie St	Utility	Utility Records\Historic Utilites\D12\Sidney St	HUA-115
Sidney St	1895	Henry St to Putnam Ave	Utility	Utility Records\Historic Utilites\D12\Sidney St	HUB-069
Sidney St	1991	Tudor St to Mass Ave	Utility	Utility Records\Water Utility	WaterAtlas_1991_D7
Sidney St	UNK	Pacific St to Waverly St	San.&Stm.	Cambridgeport Roadways	Proposed
Sidney St	UNK	Pacific St to Waverly St	San.&Stm.	Cambridgeport Roadways	Survey
Sidney St	2001	Pacific St to Emily St	San.&Stm.	MIT Utility Drawings	MIT Utility_2_2016
Speridakis Ter	1905	Pearl St	San.	Sewer Volumes\Catchment_D10\Speridakis Ter	sew-23-33
Speridakis Ter	UNK	Pearl St	Utility	Utility Records\Comcast Utility	377-530
Speridakis Ter	1920	Pearl St	Utility	Utility Records\Historic Utilites\D10\Speridakis Ter	HUA-181
Speridakis Ter	1895	Pearl St	Utility	Utility Records\Historic Utilites\D10\Speridakis Ter	HUB-065
Speridakis Ter	UNK	Pearl St to Brookline St	San.&Stm.	CMH7\CMH7cad.zip\Existing Survey - CAD\DECATUR VALENTINE TUDOR EMILY SPERIDAKIS	PRELIMINARY DECATUR VALENTINE TUDOR EMILY SPERIDAKIS
St. Paul St.	1899	Prospect St	San.	Sewer Volumes\Catchment_D10\St Paul St	sew-19-24
St. Paul St.	1920	Prospect St	Utility	Utility Records\Historic Utilites\D10\St Paul St	HUA-237
St. Paul St.	1895	Prospect St	Utility	Utility Records\Historic Utilites\D10\St Paul St	HUB-056
Talbot St	1879	Allston St to Putnam Ave	San.	Sewer Volumes\Catchment_D12\Talbot St	sew-09-45
Talbot St	1890	Waverly St	San.	Sewer Volumes\Catchment_D12\Talbot St	sew-15-26
Talbot St	2017	Waverly St	Stm.	Talbot St Outfall 50% Dwgs	_2017-11-03 Talbot Street Outfall Plans - 50-pct Design Development - FINAL 2017-11-07
Talbot St	1895	Waverly St	Utility	Utility Records\Historic Utilites\D12\Talbot St	HUB-047
Talbot St	1895	Waverly St	Utility	Utility Records\Historic Utilites\D12\Talbot St	HUB-048
Temple St	1886	Temple St	San.	Sewer Volumes\Catchment_D10\Temple St	sew-13-12
Temple St	1920	Mass Ave to Bishop Allen Dr.	Utility	Utility Records\Historic Utilites\D10\Temple St	HUA-286
Tudor St	1906	Brookline St to Sidney St	San.&Stm.	Sewer Volumes\Catchment_D10\Tudor St	sew-23-47
Tudor St	UNK	Brookline St to Sidney St	Utility	Utility Records\Comcast Utility	377-530
Tudor St	1920	Brookline St to Sidney St	Utility	Utility Records\Historic Utilites\D10\Tudor St	HUA-163
Tudor St	1895	Brookline St to Sidney St	Utility	Utility Records\Historic Utilites\D10\Tudor St	HUB-063
Tudor St	1991	Brookline St to Sidney St	Utility	Utility Records\Water Utility	WaterAtlas_1991_D7
Tudor St	UNK	Brookline St to Sidney St	San.&Stm.	CMH7\CMH7cad.zip\Existing Survey - CAD\DECATUR VALENTINE TUDOR EMILY SPERIDAKIS	PRELIMINARY DECATUR VALENTINE TUDOR EMILY SPERIDAKIS
Upton St	1937	Pleasant St to Magazine St	San.&Stm.	_Other Historical Plans\Catchment D12\Upton St	6918
Upton St	1872	Pleasant St to Magazine St	San.	Sewer Volumes\Catchment_D12\Upton St.	sew-06-07
Upton St	UNK	Pleasant St to Magazine St	Utility	Utility Records\Comcast Utility	355-530
Upton St	1965	Magazine St to Pleasant St	Utility	Utility Records\Gas Utility	CambridgeGasCo_1965Atlas_104
Upton St	1920	Pleasant St to Magazine St	Utility	Utility Records\Historic Utilites\D12\Upton St	HUA-153
Upton St	1991	Pleasant St to Magazine St	Utility	Utility Records\Water Utility	WaterAtlas_1991_D6
Upton St	2005	Pleasant St to Magazine St	San.&Stm.	CMH3	AsBuil_10.25.05
Vail Ct	1917	Bishop Allen Dr	San.&Stm.	Sewer Volumes\Catchment_D10\Vail Ct	sew-27-07



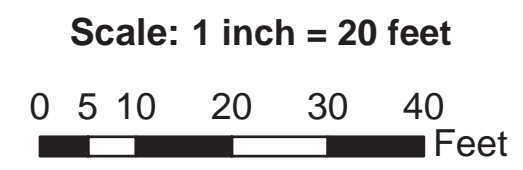
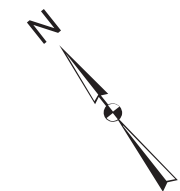
Vail Ct	1917	Bishop Allen Dr.	San.&Stm.	_Other Historical Plans\Catchment D10\Vail Ct	6154
Valentine St	1874	Pearl St to Brookline St	San.	Sewer Volumes\Catchment_D10\Valentine St	sew-07-50
Valentine St	1935	Pearl St to Brookline St	San.&Stm.	_Other Historical Plans\Catchment D10\Valentine St	6919 (1)
Valentine St	1905	Pearl St to Brookline St	San.	Sewer Volumes\Catchment_D10\Valentine St	sew-23-33
Valentine St	UNK	Pearl St to Brookline St	Utility	Utility Records\Comcast Utility	377-530
Valentine St	1965	Brookline St to Pearl St	Utility	Utility Records\Gas Utility	Brookline St Gas
Valentine St	UNK	Pearl St to Brookline St	Utility	Utility Records\Historic Utilites\D10\Valentine St	HUA-116
Valentine St	UNK	Pearl St to Brookline St	Utility	Utility Records\Historic Utilites\D10\Valentine St	HUA-181
Valentine St	UNK	Pearl St to Brookline St	San.&Stm.	CMH7\CMH7cad.zip\Existing Survey - CAD\DECATUR VALENTINE TUDOR EMILY SPERIDAKIS	PRELIMINARY DECATUR VALENTINE TUDOR EMILY SPERIDAKIS
Vassar St	2003	Audry St to Memorial Dr.	San.&Stm.	Amesbury St_Audrey St_Pearl St_Improvements (Vassar)	asbuilts
Vassar St	1912	Endicott St to Danforth St.	San.&Stm.	Sewer Volumes\Catchment_D10\Valentine St	sew-25-23
Vassar St	1915	Fowler St to Endicott St	San.&Stm.	Sewer Volumes\Catchment_D10\Valentine St	sew-27-03
Vassar St	2001	Pacific St	San.&Stm.	Cambridgeport Roadways	ALL00\$
Vassar St	2001	Pacific St	San.&Stm.	MIT Utility Drawings	MIT Utility_1_2016
Vassar St	1997	Pacific St	San.&Stm.	MIT Utility Drawings	MIT_Utility_Plans_1997
Watson St	1881	Pearl St to Brookline St	San.	Sewer Volumes\Catchment_D10\Watson St	sew-10-22
Watson St	UNK	Pearl St to Brookline St	Utility	Utility Records\Comcast Utility	377-530
Watson St	1965	Brookline St to Pearl St	Utility	Utility Records\Gas Utility	Brookline St Gas
Watson St	1991	Pearl St to Brookline St	Utility	Utility Records\Water Utility	WaterAtlas_1991_D6
Waverly St	1920	Erie St to Pacific St	San.&Stm.	Sewer Volumes\Catchment_D10\Waverly St	sew-27-02
Waverly St	2009	Merriam and Pacific St	Utility	_Other Historical Plans\Catchment D10\Waverly St	9594
Waverly St	1935	Chestnut St to Erie St	San.	_Other Historical Plans\Catchment D12\Waverly St	6923
Waverly St	1961	Putnam Ave to Allston St	San.	_Other Historical Plans\Catchment D12\Waverly St	7513
Waverly St	2002	Brookline St	Stm.	Cambridgeport Roadway Improvements	CambridgeportRoadways-2003_46-Drain
Waverly St	2000	Erie St	Stm.	Cambridgeport Roadway Improvements	CambridgeportRoadways-2003_60-Drain
Waverly St	2000	Henry St	Stm.	Cambridgeport Roadway Improvements	CambridgeportRoadways-2003_62-Drain
Waverly St	2000	Henry St to Chestnut St	Stm.	Cambridgeport Roadway Improvements	CambridgeportRoadways-2003_63-Drain
Waverly St	2000	Putnam Ave	Stm.	Cambridgeport Roadway Improvements	CambridgeportRoadways-2003_65-Drain
Waverly St	2000	Reardon St to Albany St	Stm.	Cambridgeport Roadway Improvements	CambridgeportRoadways-2003_67-Drain
Waverly St	1879	Allston St to Putnam Ave	San.	Sewer Volumes\Catchment_D12\Waverly St	sew-09-45
Waverly St	1888	Henry St to Putnam Ave	San.	Sewer Volumes\Catchment_D12\Waverly St	sew-13-42
Waverly St	1891	Talbot St to Erie St	San.	Sewer Volumes\Catchment_D12\Waverly St	sew-16-05
Waverly St	1920	Erie St to Pacific St	San.&Stm.	Sewer Volumes\Catchment_D12\Waverly St	sew-27-02
Waverly St	1920	Erie St to Chestnut St	Utility	Utility Records\Historic Utilites\D12\Waverly St	HUA-159
Waverly St	1895	Chestnut St to Allston St	Utility	Utility Records\Historic Utilites\D12\Waverly St	HUB-048
Waverly St	UNK	Erie St to Sidney St	San.&Stm.	Cambridgeport Roadways	Proposed
William St	1935	River St to Pearl St	San.	_Other Historical Plans\Catchment D12\William St	6933
William St	1939	River St to Magazine St	San.	_Other Historical Plans\Catchment D12\William St	7009
William St	1877	River St to Magazine St	San.	Sewer Volumes\Catchment_D12\Waverly St	sew-09-32
William St	1883	Magazine St to Pearl St	San.	Sewer Volumes\Catchment_D12\Waverly St	sew-11-02
William St	1973	Pearl St to Magazine St	San.&Stm.	Sketches	MWRA Crossing (Sketch)
William St	1965	Magazine St to River St	Utility	Utility Records\Gas Utility	CambridgeGasCo_1965Atlas_105
William St	1965	Pearl St to Magazine St	Utility	Utility Records\Gas Utility	CambridgeGasCo_1965Atlas_106
William St	1920	River St to Pearl St	Utility	Utility Records\Historic Utilites\D12\William St	HUA-152
William St	1895	Magazine St to Pearl St	Utility	Utility Records\Historic Utilites\D12\William St	HUB-062
William St	1991	River St to Magazine St	Utility	Utility Records\Water Utility	WaterAtlas_1991_D7
William St	2005	River St to Magazine St	San.&Stm.	CMH3	AsBuit_10.25.05
William St	1973	Pearl St to Magazine St	San.&Stm.	Maguire Drawings\William St	4

**APPENDIX B**  
**VALENTINE STREET OBSTRUCTION SKETCH**



**PROJECT: CAMBRIDGEPORT IDDE**  
**TITLE: STORMWATER PIPE OBSTRUCTION**  
**DATE: 1/11/2018**

- | Manholes/Lampholes |               | Gravity Main Type |
|--------------------|---------------|-------------------|
| ● SS Manhole       | * SS Lamphole | → Sanitary Sewer  |
| ● SD Manhole       | * SD Lamphole | → Storm Drain     |
| ● CS Manhole       | * CS Lamphole | → Combined Sewer  |
| ■ Catchbasin       |               | → MWRA Sewer      |



**APPENDIX C**  
**CCTV DATABASE (EXISTING AND NEW)**

**Cambridgeport Stormwater Improvements (IDDE)**  
**CCTV Database (Includes historical CCTV from 2006 - 2017)**

**General Notes:**

1. CCTV Related to PL6 project area has not been included in database
2. Database includes Historical CCTV from 2006 to 2017
3. D12 prioritized; Remaining drain reaches within D12 added to table to quantify what is missing
4. NWMCC Round 2 work will include obtaining CCTV for all remaining reaches within D12 that we do not have historical CCTV  
Survey Abandoned

Street	Area	Catchment Area	Type	Upstream Manhole	Downstream Manhole	GIS FacilityID	CCTV Date	Pipe Size (in)	Pipe Material	Report (Y/N)	Video (Y/N)	Stagnant Flow Visible (Y/N)	CCTV Pipe Length (ft)	Lateral Connections into SD (Y/N/NA)	No. of Lateral Connections into SD (#)
Albany Street	Erie St to Pacific St	D10	Storm	D10DMH0205	D10DMH0520 (Labeled D10DMH0585)	D10DMH0205_D10COM0520	7/6/2016	36	RCP (Lined?)	N	Y	Y	34	UNK	UNK
		D10	Storm	D10DMH0210	D10DMH0205	D10DMH0210_D10DMH0205	7/6/2016	36	RCP (Lined?)	N	Y	Y	124	Y	2
		D10	Storm	D10DMH0220	D10DMH0210	D10DMH0220_D10DMH0210	7/6/2016	36	RCP	N	Y	N	394	Y	8
		D12	Storm	D10DMH0230	D10DMH0225	D10DMH0230_D10DMH0225	7/6/2016	36	RCP	N	Y	Y	95	N	
		D12	Storm	D10DMH0225	D10DMH0220	D10DMH0225_D10DMH0220	7/6/2016	36	RCP	N	Y	N	288	Y	5
Allston St	Sidney St to Grove Ave	D12	Storm	D12DMH1205	S24CMH7010 (Suspected Access229)	D12DMH1205_FITT3222	1/21/2009	24	RCP	N	Y	N	169	Y	7
	Magazine St to Pearl St	D12	Storm	D12DMH7320	D12DMH8910	D12DMH8910_D12DMH8905	2/25/2013	12	RCP	N	Y	N	5	N	
	Pearl St to Brookline St	D12	Storm	D12DMH7320	D12DMH9007	D12DMH7320_D12DMH9005	2/25/2013	12	RCP	N	Y	N	19	N	
	Magazine St to Pearl St	D12	Storm	D12DMH8905	D12DMH8910	D12DMH8910_D12DMH8905	2/25/2013	12	RCP	N	Y	N	185	N	
		D12	Storm	D12DMH8910	D12DMH8915	D12DMH8915_D12DMH8910	2/25/2013	12	RCP	N	Y	N	170	N	
	Pearl St to Brookline St	D12	Storm	D12DMH8905	D12DMH7320	D12DMH8905_D12DMH7320	2/28/2018	12	RCP	Y	Y	N	18	N	
		D12	Storm	D12DMH9010	D12DMH9005 (Labeled D12DMH9007)	D12DMH9010_D12DMH9005	2/25/2013	12	RCP	N	Y	N	160	N	
	Sidney St	D12	Storm	D12DMH1215	D12DMH1210	D12DMH1215_D12DMH1210	3/8/2018	15	RCP	Y	Y	N	28	N	
D12		Storm	D12DMH1210	D12DMH1205	D12DMH1210_D12DMH1205	3/8/2018	15	RCP	Y	Y	N	47	N		
		D10	Storm	D10DMH0323	D10DMH0320	D10DMH0323_FITT3717	4/2/2018	12	VCP	Y	Y	Y	205	Y	4
		D10	Storm	D10DMH0320	D10DMH0115	FITT3716_D10DMH0115	4/2/2018	12	PVC	Y	Y	Y	68	Y	4
	Fowler St to Endicott St	D10	Storm	D10DMH1660	D10DMH1650	D10DMH1660_D10DMH1650	4/2/2018	15	RCP	Y	Y	Y	128	Y	4
		D10	Storm	D10DMH1650	D10DMH0115	D10DMH1650_D10DMH0115	4/3/2018	15	VCP	Y	Y	Y	68	Y	6
Auburn Park	Brookline Pl to Brookline St	D10	Storm	D10DMH2515	D10DMH2514	D10DMH2515_D10DMH2514	2/27/2017	18	RCP	Y	Y	Y	101	N	
		D10	Storm	D10DMH2505		D10DMH2505_FIT1330									
Auburn Street	Salem St to Brookline St	D10	Storm	D10DMH2810	D10DMH2805	D10DMH2810_D10DMH2805	2/24/2017	12	RCP	Y	Y	N	343	N	
		D10	Sewer	S23SMH3710	S23SMH3705	S23SMH3710_S23SMH3705	2/24/2017	8	VCP	Y	N	UNK	195	NA	NA
		D10	Sewer	S23SMH3715	S23SMH3710	S23SMH3715_S23SMH3710	2/24/2017	8	VCP	Y	N	UNK	136	NA	NA
		D10	Sewer	S23SMH3705	S23SMH3125	S23SMH3705_S23SMH3125	2/24/2017	8	VCP	Y	N	UNK	22	NA	NA
	Pearl St to Salem St	D10	Sewer	S23SMH3720	S23SMH3715	S23SMH3720_S23SMH3715	2/24/2017	8	VCP	Y	N	UNK	98	NA	NA
		D10	Storm	D12DMH7575 (Suspected D12DMH7573)	D12DMH7570	D12DMH7573_D12DMH7570	11/19/2014	12	PVC	N	Y	N	28	N	
	Magazine St to River St	D10	Storm	D12DMH8310	D12DMH7575 (Suspected D12DMH7573)	D12DMH8310_D12DMH7573	11/19/2014	12	PVC	N	Y	N	248	N	
D10		Storm	D12DMH7210	D09DMH7205	D12DMH7210_D09DMH7205	9/19/2012	12	RCP	N	Y	N	243	N		
Pearl St to Magazine St	D10	Storm	D09DMH7205	D12DMH6650	D09DMH7205_D12DMH6650	9/19/2012	12	RCP	N	Y	N	16	N		
	D10	Storm	D10DMH2205	D10DMH2415	D10DMH2205_D10DMH2415	2/27/2017	24	RCP	Y	Y	N	150	N		
Brookline Place	Auburn St to Pilgrim St	D10	Storm	D10DMH2207	D10DMH2205	D10DMH2207_D10DMH2205	2/27/2017	15	RCP	Y	Y	N	72	N	
		D10	Storm	D10DMH2415	D10DMH2305	D10DMH2415_D10DMH2305	2/27/2017	24	RCP	Y	Y	N	239	Y	1
	Frankline St to Auburn St	D10	Storm	D10DMH2520	D10DMH2515	D10DMH2520_D10DMH2515	2/27/2017	18	RCP	Y	Y	N	187	N	

Street	Area	Catchment Area	Type	Upstream Manhole	Downstream Manhole	GIS FacilityID	CCTV Date	Pipe Size (in)	Pipe Material	Report (Y/N)	Video (Y/N)	Stagnant Flow Visible (Y/N)	CCTV Pipe Length (ft)	Lateral Connections into SD (Y/N/NA)	No. of Lateral Connections into SD (#)
	Frankline St to Pilgrim St	D10	Sewer	S23SMH0810	S23SMH0815	S23SMH0810_S23SMH0815	2/27/2017	8	PVC	Y	N	UNK		NA	NA
		D10	Sewer	S23SMH0825	S23SMH0820	S23SMH0825_S23SMH0820	2/27/2017	12	PVC	Y	N	UNK	246	NA	NA
		D10	Sewer	S23SMH0820	S23SMH0805	S23SMH0825_S23SMH0805	2/27/2017	12	PVC	Y	N	UNK	110	NA	NA
Brookline Street	Allston St to Watson St	D10	Storm	D10DMH2015	D10DMH2013	D10DMH2015_D10DMH2013	2/8/2017 & 2/4/2008	24	RCP	Y	Y	Y	126	N	
		D10	Storm	D10DMH2013 (Labeled D10DMH2015)	D10DMH2010	D10DMH2013_D10DMH2010	2/8/2017 & 2/4/2008	24	RCP	Y	Y	N	64	N	
		D10	Storm	D10DMH2020	D10DMH2015	D10DMH2020_D10DMH2015	2/8/2017 & 2/4/2008	24	RCP	Y	Y	Y	48	N	
	Watson St to Auburn St	D10	Storm	D10DMH2625	D10DMH2620	D10DMH2625_D10DMH2620	3/19/2018	54x48	Brick	Y	Y	Y	210	Y	7
	Lopez St to Pacific St	D10	Storm	D10DMH2010	D10DMH2005	D10DMH2010_D10DMH2005	2/4/2008	24	RCP	N	Y	N	41	Y	1
		D10	Sewer	S23SMH3005	S23SMH0035	S23SMH3005_S23SMH0035	3/2/2017	12	VCP	Y	N	UNK	64	NA	NA
	Pacific St to Pilgrim St	D10	Storm	D10DMH2620	D10DMH0550	D10DMH2620_D10DMH0550	3/20/2018	64x48	Brick	Y	Y	Y	286 (CCTV 234)	Y	7
	Pilgrim St to Green St	D10	Storm	FIT6578	D10DMH1340	FIT6578_D10DMH1340		48		N	N		730		
	Valentine St to Decatur St	D10	Storm	D10DMH2025	D10DMH2020	D10DMH2025_D10DMH2020	2/4/2008	24	RCP	N	Y	N	180	Y	1
		D10	Storm	D10DMH2030	D10DMH2025	D10DMH2030_D10DMH2025	2/4/2008	18	RCP	N	Y	N	114	Y	1
	Erie St to Valentine St	D10	Storm	D10DMH2035	D10DMH2030	D10DMH2035_D10DMH2030	2/4/2008	12	RCP	N	Y	N	162	Y	3
		D10	Storm	D10DMH2040	D10DMH2035	D10DMH2040_D10DMH2035	2/4/2008	12	RCP	N	Y	N	190	Y	2
	Auburn St to Franklin	D10	Storm	D10DMH2630	D10DMH2625	D10DMH2630_D10DMH2625	3/19/2018	54x48	Brick	Y	Y	Y	231	Y	12
	Green St to Franklin St	D10	Storm	D10DMH2635	D10DMH2630	D10DMH2635_D10DMH2630	3/19/2018	54x48	Brick	Y	Y	Y	247	Y	5
	Green St to Massachusetts Ave	D10	Storm	D10DMH2650	D10DMH2635	D10DMH2650_D10DMH2635	5/15/2008	64x48	Brick	N	Y	N	226	Y	4
Allston St to Erie St	D12	Storm	D12DMH6028	D12DMH6026	D12DMH6028_D12DMH6026	1/31/2008	12	VCP	N	Y	N	420	Y	22	
Hamilton St to Erie St	D12	Storm	D12DMH6026	D12DMH6030 (labeled as D12DMH6031 in report, type)	D12DMH6026_FIT1068	3/8/2018	12	PVC	Y	Y	Y	32	N		
Decatur St to Lopez St	D10	Sewer	S23SMH3010	S23SMH3005	S23SMH3010_S23SMH3005	3/2/2017	10	VCP	Y	N	UNK	230	NA	NA	
Decatur St	D10	Combined	S23COM3307 (Suspect D10DMH2200)	D10DMH2020	D10DMH2200_FITT4342	2/26/2008	18	RCP	N	Y	N	213	Y	3	
Chalk Street	Pleasant St to Magazine St	D12	Storm	D12DMH7810	D12DMH7535	D12DMH7810_D12DMH7535	11/6/2014	15	VCP	N	Y	N	143	Y	1
		D12	Storm	D12DMH7815	D12DMH7810	D12DMH7815_FIT6963	11/6/2014	15	VCP	N	Y	N	312	N	
Chestnut St	Brookline St to Sidney St	D12	Storm	D12DMH0932	D12DMH0930	D12DMH0932_D12DMH0930	3/8/2018	15	RCP	Y	Y	Y	32	N	
Clinston St	Harvard St to Mass Ave	D10	Storm	D10DMH3610	D10DMH3605	D10DMH3610_FITT3257	3/26/2018	10	DI	Y	Y	Y	168		7
		D10	Storm	D10DMH3605	D10DMH3600	D10DMH3605_D10DMH3600	3/26/2018	12	PVC	Y	Y	N	27.1	N	NA
Corporal McTernan	Magazine St to Pearl St (Filmed from Downstream MH)	D12	Storm	D12DMH6715	D12DMH6710	D12DMH6715_D12DMH6710	9/24/2012	12	RCP	N	Y	N	37	Y	2
		D12	Storm	D12DMH6710	D12DMH6705	D12DMH6710_D12DMH6705	9/27/2012	12	RCP	N	Y	N	254	Y	4
		D12	Storm	D12DMH6705	D12DMH6615	D12DMH6705_D12DMH6615	9/24/2012	12	RCP	N	Y	N	24	N	
Cottage Street	River Street to Magazine Street	D12	Storm	D12DMH8115	D12DMH8110	D12DMH8115_FIT6992	11/24/2014	15	VCP	N	Y	N	236	N	
		D12	Storm	D12DMH8110	D12DMH7553	FIT6653_D12DMH7553	11/24/2014	18	VCP	N	Y	N	220	N	
		D12	Storm	D12DMH7553	D12DMH7550	D12DMH7553_D12DMH7550	11/24/2014	18	VCP	N	Y	N	15	N	
	D12	Storm	D12DMH7015	D12DMH7010	D12DMH7015_D12DMH7010	2/26/2018	12	RCP	Y	Y	N	166	N		
	D12	Storm	D12DMH7010	D12DMH7012	D12DMH7010_D12DMH7012	2/26/2018	12	RCP	Y	Y	N	109	N		

Street	Area	Catchment Area	Type	Upstream Manhole	Downstream Manhole	GIS FacilityID	CCTV Date	Pipe Size (in)	Pipe Material	Report (Y/N)	Video (Y/N)	Stagnant Flow Visible (Y/N)	CCTV Pipe Length (ft)	Lateral Connections into SD (Y/N/NA)	No. of Lateral Connections into SD (#)	
	Magazine Street to Pearl Street	D12	Storm	D12DMH7012	D12DMH7005	D12DMH7012_D12DMH7005	9/19/2012	12	RCP	N	Y	N	83	Y	1	
		D12	Storm	D12DMH7005	D12DMH6636	D12DMH7005_D12DMH6636	9/19/2012	12	RCP	N	Y	N	16	N		
Columbia Street	Columbia Ter to Bishop Allen Drive	D10	Storm	D10DMH4608	D01DMH8865	D10DMH4608_D01DMH8865	UNK	15	RCP	N	Y	Y	209	Y	6	
	Columbia Ter to Bishop Allen Drive	D10	Storm	D10DMH4610 (Suspect D10DMH4612)	D10DMH4608	D10DMH4612_D10DMH4608	12/17/2015	15	VCP	N	Y	N	213	Y	9	
	Main St to Bishop Allen Drive	D10	Storm	D10DMH4710	D01DMH8865	D10DMH4710_D01DMH8865	UNK	15	VCP	N	Y	Y	186	Y	3	
Decator Street	Pearl Street to Brookline Street	D10	Storm	D10DMH2210	D10DMH2200	D10DMH2210_D10DMH2200	2/28/2017	15	VCP	Y	Y	Y	242	Y	5	
		D10	Storm	D10DMH2200	D10DMH2020	D10DMH2200_FIT4342	2/8/2017	18	PVC	Y	Y	Y	212	Y	3	
		D10	Sewer	S23SMH3310	S23SMH3307	S23SMH3310_S23SMH3307	2/28/2017	8	PVC	Y	N	UNK	244	NA	NA	
		D10	Sewer	S23SMH3307	FIT7374		2/28/2017	8	VCP	Y	N	UNK	221	NA	NA	
Douglass Street	Bishop Allen Dr to Mass Ave	D10	Storm	D10DMH4605	D10DMH3115	D10DMH4605_D10DMH3115	2/1/2016	36	Brick	N	Y	N	292	Y	7	
Erie Street	Magazine Street to Pearl Street	D12	Storm	D12DMH7523	D12DMH6060	D12DMH7523_D12DMH6060	3/24/2017	12	RCP	N	Y	N	116	N		
		D12	Storm	D12DMH6060	D12DMH6055	D12DMH6060_D12DMH6055	3/24/2017	12	RCP	N	Y	N	225	Y	2	
		D12	Storm	D12DMH6055	D12DMH6050	D12DMH6055_D12DMH6050	3/24/2017	12	RCP	N	Y	Y	92	N		
		D12	Storm	D12DMH6050	ACCESS352	D12DMH6050_FIT3775	3/24/2017	12	PVC	N	Y	Y	42	N		
	Pearl Street to Brookline Street	D12	Storm	D12DMH6035	D12DMH6033	FITT2211_FIT8459	3/27/2017	40	RCP	N	Y	Y	232	Y	UNK	
		D12	Storm	ACCESS352	D12DMH6035	FITT3779_FIT2212	2/26/2018	40x30	RCP	Y	Y	N	245	Y	3	
		D12	Storm	D12DMH6033	D12DMH6030	D12DMH6033_D12DMH6030	3/5/2018	36	RCP	Y	Y	Y	41	N		
	Brookline St to Sidney St	D12	Storm	D12DMH6030	D12DMH0300	D12COM6030_FIT6725	3/5/2018	40x42	DIP/BR	Y	Y	Y	420	Y	12	
		D12	Storm	D12DMH0300	D12DMH0205	D12DMH0300_D12DMH0205	3/5/2018	54	RCP	Y	Y	Y	25	N		
			D12	Storm	D12DMH0200	D12DMH0190	D12DMH0200_D12DMH0190	3/5/2018	54	RCP	Y	Y	Y	111	N	
			D12	Storm	D12DMH0190 (labeled as D12DMH0191 in report, typo)	ACCESS231	D12DMH0190_FIT7416	3/5/2018	54	RCP	Y	Y	Y	264	Y	1
			D12	Storm	D12DMH0205	D12UGS0003	D12DMH0205_FIT7480	3/5/2018	54	RCP	Y	Y	Y	32	N	
			D12	Storm	D12UGS0003	ACCESS231	FIT7482_FIT7479	3/5/2018	54	RCP/BR	Y	Y	Y	381	Y	18
D12			Storm	D10DMH0305	D10DMH0240	D10DMH0305_D10DMH0240	3/9/2018	15	RCP	Y	Y	Y	17	N		
Fairmont Street	Pleasant St to Magazine St	D12	Storm	D12DMH7715	D12DMH7710	D12DMH7715_FIT7163	11/7/2014	15	VCP	N	Y	N	269	Y	1	
		D12	Storm	D12DMH7710	D12DMH7525	FITT3447_D12DMH7525	11/7/2014	18	VCP	N	Y	N	241	Y	3	
Fowler St		D10	Storm	D10DMH1665	D10DMH1660	D10DMH1665_D10DMH1660	4/3/2018	15	RCP	Y	Y	Y	42	N		
	Magazine Street to Pearl Street	D10	Storm	D10DMH5550	D10COM2915 (Suspected S23COM3925)	D10DMH5550_D10COM2915	2/24/2016	15	RCP	N	Y	Y	78	N		
		D10	Storm	D10COM2915 (Suspected S23COM3925)	D10DMH2910	D10COM2915_FIT3679	2/24/2016	15	RCP	N	Y	Y	322	Y	UNK	
	Pearl Street to Brookline Street	D10	Storm	D10DMH2910	D10COM2630 (Suspect D10DMH2905)	D10COM2910_FIT075	2/24/2016	15	RCP	N	Y	N	111	N		
	Brookline St to Brookline Pl	D10	Storm	D10DMH1525	D10DMH1520	D10DMH1525_D10DMH1520	2/26/2016	18	RCP	N	Y	N	165	N		

Street	Area	Catchment Area	Type	Upstream Manhole	Downstream Manhole	GIS FacilityID	CCTV Date	Pipe Size (in)	Pipe Material	Report (Y/N)	Video (Y/N)	Stagnant Flow Visible (Y/N)	CCTV Pipe Length (ft)	Lateral Connections into SD (Y/N/NA)	No. of Lateral Connections into SD (#)
Franklin Street	Brookline Pl to Sidney Pl	D10	Storm	D10DMH1520	D10DMH1515	D10DMH1520_D10DMH1515	2/26/2016	18	RCP	N	Y	Y	41	N	
		D10	Storm	D10DMH1510	D10DMH1505	D10DMH1510_D10DMH1505	2/26/2016	18	RCP	N	Y	Y	97	N	
		D10	Storm	D10DMH2905	D10DMH2630	FITT0076_D10COM2630	3/15/2018	18	PVC/RCP	Y	Y	Y	355	Y	3
		D10	Storm	D10DMH1515	D10DMH1510	D10DMH1515_D10DMH1510	3/16/2018	18	RCP	Y	Y	Y	98	N	
		D10	Storm	D10DMH1420	D10DMH1415	FIT1325_D10DMH1415	2/26/2016	15	RCP	N	Y	Y	81.3	N	
		D10	Storm	D10DMH1415	D10DMH1410	D10DMH1415_D10DMH1410	2/26/2015	15	RCP	N	Y	Y	50	N	
Green Street	Magazine Street to Pearl Street	D10	Storm	D10DMH3370	D10DMH3365	D10DMH3370_D10DMH3365	3/9/2007	12	RCP	N	Y	Y	200	Y	UNK
		D10	Storm	D10DMH3360	D10DMH3355	D10DMH3360_D10DMH3355	3/9/2007	12	RCP	N	Y	N	197	Y	2
	Western Ave to Pleasant St	D10	Sewer	S23SMH2125	S23SMH2130	S23SMH2125_S23SMH2130	3/8/2017	8	PE	Y	N	UNK	298	NA	NA
	Pleasant St to Sellers St	D10	Combined	D17CMH3920	D17CMH3915 (Suspect D17CMH3918)	D17CMH3920_D17CMH3918	3/8/2017	12	PVC	Y	N	UNK	151	NA	NA
		D10	Combined	D17CMH3918	D17CMH3915	D17CMH3918_D17CMH3915	3/8/2017	12	PVC	Y	N	UNK	228	NA	NA
		D10	Sewer	S33SMH2720	S33SMH2715	S33SMH2720_S33SMH2715	3/10/2017	8	PE	Y	N	UNK	262	NA	NA
	Sellers St to Hancock St	D10	Combined	D17CMH3915	D17CMH3905	D17CMH3915_D17CMH3905	3/8/2017	15	PVC	Y	N	UNK	361	NA	NA
		D10	Combined	D17CMH3905	D17CMH3410	D17CMH3905_D17CMH3410	3/8/2017	15	CP	Y	N	UNK	361	NA	NA
		D10	Sewer	S33SMH2715	S33SMH2710	S33SMH2715_S33SMH2710	3/10/2017	10	PE	Y	N	UNK	324	NA	NA
	Pearl St to Sydney St	D10	Sewer	S33SMH2710	S33SMH2415	S33SMH2710_S33SMH2415	3/10/2017	10	PE	Y	N	UNK	322	NA	NA
D10		Storm	D10DMH3005	D10DMH2635	D10DMH3005_D10DMH2635	3/15/2018	12	RCP	Y	Y	N	24	N		
D10		Storm	D10DMH3010	D10DMH3005	D10DMH3010_D10DMH3005	3/15/2018	12	RCP	Y	Y	Y	210	Y	1	
		D10	Storm	FIT6785	D10DMH3010	FIT6785_D10DMH3010		15	UNK	N	N		135		
Hamilton Street	Magazine St to Pearl St	D12	Storm	D12DMH7405	D12DMH7510	FITT3457_D12DMH7405	3/23/2018	42	RCP	Y	Y	Y	249.8	Y	4
		D12	Storm	D12DMH7405	D12DMH7310	D12DMH7405_D12DMH7310	2/26/2018	36	RCP	Y	Y	N	218	Y	1
	Brookline St to Pearl St	D12	Storm	D12DMH8810	D12DMH8805	D12DMH8810_D12DMH8805	2/26/2013	12	RCP	N	Y	N	335	Y	2
		D12	Storm	D12DMH8805	D12DMH7310	D12DMH8805_D12DMH7310	2/26/2013	12	RCP	N	Y	N	12	N	
	Brookline St to Sidney St	D12	Storm	D12DMH6410	D12DMH6405	FIT7347_D12DMH6405	2/27/2008	15	RCP	N	Y	N	37	N	
		D12	Storm	D12DMH6460	D12DMH6410	D12DMH6460_D12COM6405	2/27/2018	15	VCP	Y	Y	N	310	Y	3
Henry St	Sidney St	D12	Storm	FIT7384 (labeled as UNKNOWN in report)	D12DMH0950	FIT7384_D12DMH0950	3/8/2018	15	RCP	Y	Y	Y	81	N	
Kelly Road	Pleasant St to Magazine St	D12	Storm	D12DMH7915	D12DMH7910	D12DMH7915_FIT7117	11/5/2014	15	RCP	N	Y	N	231	N	
		D12	Storm	D12DMH7910	D12DMH7540	FIT7273_D12DMH7540	11/5/2014	18	RCP	N	Y	N	172	N	
		D12	Storm	D12DMH7540	D12DMH7537	D12DMH7540_D12DMH7537	2/28/2018	18	RCP	Y	Y	Y	48	Y	1
Lawrence Street	Magazine Street to Pearl Street	D12	Storm	D12DMH6805	D12DMH6625	D12DMH6805_D12DMH6625	9/21/2012	12	RCP	N	Y	Y	16	N	
		D12	Storm	D12DMH6810	D12DMH6805	D12DMH6810_D12DMH6805	2/26/2018	12	RCP	Y	Y	N	212	N	
Lopez Street	Pearl St to Brookline St	D10	Storm	D10DMH2110	D10DMH2105	D10DMH2110_D10DMH2105	2/8/2017	12	RCP	Y	Y	N	305	Y	1
		D10	Storm	D10DMH2105	D10DMH2010	D10DMH2105_D10DMH2010	2/8/2017	12	RCP	Y	Y	Y	14	N	
		D10	Sewer	S23SMH3220	S23SMH3215	S23SMH3220_S23SMH3215	2/28/2017	8	VCP	Y	N	UNK	194	NA	NA
		D10	Sewer	S23SMH3215	S23SMH3210	S23SMH3215_S23SMH3210	2/28/2017	8	VCP	Y	N	UNK	232	NA	NA
Magazine St	Auburn St to William St	D12	Storm	D12DMH7570	D12DMH7563	D12DMH7570_D12DMH7563	11/19/2014	24	RCP	N	Y	Y	182	Y	1
	William St to Cottage St	D12	Storm	D12DMH7560	D12DMH7550	D12DMH7560_D12DMH7550	11/24/2014	24	RCP	N	Y	N	220	Y	3
	Cottage St to Upton St	D12	Storm	D12DMH7550	D12DMH7547	D12DMH7550_D12DMH7547	11/25/2014	30	RCP	N	Y	N	264	Y	2
		D12	Storm	D12DMH7547	D12DMH7544	D12DMH7547_FIT7326	11/25/2014	30	RCP	N	Y	N	121	Y	2
	Upton St to Kelly Rd	D12	Storm	D12DMH7544	D12DMH7537	FIT6827_D12DMH7537	11/3/2014	30	RCP	N	Y	N	234	Y	4
	Kelly Rd to Chaulk St	D12	Storm	D12DMH7537	D12DMH7530	D12DMH7537_FIT7130	11/4/2014	36	RCP	N	Y	N	236	Y	4
		D12	Storm	D12DMH7535	D12DMH7525	FITT3461_D12DMH7525	11/7/2014	24	RCP	N	Y	N	234	Y	2



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	Chaulk St to Fairmont St	D12	Storm	D12DMH7530	D12DMH7520	FITT3459_D12DMH7520	11/4/2014	36	RCP	N	Y	Y	240	Y	3
	Fairmont St to Hamilton St	D12	Storm	D12DMH7520	D12DMH7510	D12DMH7520_FITT3456	11/6/2014	36	RCP	N	Y	Y	170	N	
	Auburn St to William St	D12	Storm	D12DMH1750	D12DMH7560	D12COM7570_D12DMH7560	11/24/2014	24	RCP	N	Y	N	210	Y	4
	Fairmont St to Price St	D12	Storm	D12DMH7525	D12DMH7515	D12DMH7525_D12DMH7515	4/4/2018	24	RCP	Y	Y	Y	162	Y	1
Mass Ave	Clinton St to Bigelow St	D10	Storm	D10DMH3600	D10DMH3595	D10DMH3600_D10DMH3595	3/26/2018	15	PVC	Y	Y	Y	101.8	Y	1
		D10	Storm	D10DMH3595	D10DMH3590	D10DMH3595_D10DMH3590	3/26/2018	15	PVC	Y	Y	Y	145	Y	1
	Bigelow St	D10	Storm	D10DMH3590	D10DMH3265	D10DMH3590_D10DMH3265	3/26/2018	15	PVC	Y	Y	Y	29	N	
	Bigelow St to Pleasant St	D10	Storm	D10DMH3265	D10DMH3260	D10DMH3265_D10DMH3260	3/26/2018	12	PVC	Y	Y	Y	271	Y	9
	Pleasant St to Temple St	D10	Storm	D10DMH3260	D10DMH3257	FITT0027_D10COM3255	3/26/2018	15	PVC/RCP	Y	Y	Y	189	Y	2
		D10	Storm	D10DMH3257	D10DMH3255	FITT3261_D10DMH3255	3/26/2018	18	DI	Y	Y	Y	42	N	
	Temple St to Prospect St	D10	Storm	D10DMH3255	D10DMH3250	D10DMH3255_D10COM3250	3/27/2018	20x18	Brick	Y	Y	Y	137	Y	2
		D10	Storm	D10DMH3250	D10DMH3245	D10DMH3250_D10DMH3245	3/27/2018	18	DI	Y	Y	N	23	N	
		D10	Storm	D10DMH3245	D10DMH3240	D10DMH3245_D10DMH3240	3/27/2018	18	DI	Y	Y	N	69	N	
	Magazine St	D10	Storm	D10DMH3240	D10DMH3235	D10DMH3240_D10DMH3235	3/27/2018	24	DI	Y	Y	Y	32	N	
		D10	Storm	D10DMH3235	D10DMH3230	D10DMH3235_D10DMH3230	3/27/2018	24	DI	Y	Y	Y	25	N	
		D10	Storm	D10DMH3230	D10DMH3225	D10DMH3230_D10DMH3225	7/17/2018	24	Brick	Y	Y	N	62	Y	3
	Propsect St to Essex St	D10	Storm	D10DMH3225	D10DMH3223	D10DMH3225_D10DMH3223		24	CIP	N	N		328		
	Essex St to Norfolk St	D10	Storm	D10DMH3223	D10DMH3220	D10DMH3223_D10DMH3220	7/1/1918	24	CIP	Y	Y	Y	8	UNK	N/A
		D10	Storm	D10DMH3340	D10DMH3215	D10DMH3340_D10DMH3215		24	DI	N	N		45		
		D10	Storm	D10DMH3220	D10DMH3215	D10COM3220_D10DMH3215	7/16/2018	24	CIP	Y	Y	N	12	N	N/A
D10		Storm	D10DMH3215	D10DMH3210	D10DMH3215_FITT3268	7/16/2018	29x27	CIP	Y	Y	N	142	Y	2	
Pacific Street	Brookline St to Sidney St	D10	Storm	D10DMH2005	D10DMH0550	D10DMH2005_D10DMH0550	2/4/2008	24	RCP	N	Y	N	22	N	
		D10	Storm	D10DMH2005 (Suspect D10DMH0550)	D10DMH0545	D10DMH0550_D10DMH0545	4/10/2006	54x64	Brick	N	Y	Y	482		
	Brookline St to Sidney St	D10	Storm	D10DMH0550	D10DMH0545	D10DMH0550_D10DMH0545	3/2/2017	54x64	Brick	Y	N	UNK	482	Y	10
		D10	Sewer	S23SMH0035	S23SMH0025	S23SMH0035_S23SMH0025	3/2/2017	24	VCP	Y	N	UNK	506	NA	NA
	Sidney St to Landsdowne St	D10	Storm	D10DMH0545	D10DMH0540	D10DMH0545_D10DMH0540	4/10/2006	54x64	Brick	N	Y	Y	264	Y	6
	Landsdowne St to Purrington St	D10	Storm	D10DMH0540	D10DMH0530 (Suspect D10DMH0535)	D10DMH0540_D10DMH0535	4/11/2006	60	Brick	N	Y	Y	90	Y	4
		D10	Storm	D10DMH0535	D10DMH0530	D10DMH0535_D10DMH0530	4/11/2006	60	Brick	N	Y	Y	170	Y	1
	Purrington St to Albany St	D10	Storm	D10DMH0530	S22COM0010 (Suspect D10DMH0525)	D10DMH0530_D10DMH0525	4/11/2006	60	Brick	N	Y	Y	253	Y	4
	Albany St	D10	Storm	D10DMH0525	1007303	D10DMH0525_1007303		10		N	N		27		
		D10	Storm	D10DMH0525	D10DMH0520	D10DMH0525_D10DMH0520	3/29/2018	60	RCP	Y	Y	Y	21	N	
Albany St to Vassar St	D10	Storm	D10DMH0520	D10DMH0242	FITT2093_D10COM0242	3/29/2018	60	RCP	Y	Y	Y	443	Y	16	

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Pearl Street	Green St to Massachusetts Ave	D10	Storm	D10DMH3310	D10DMH3215	D10DMH3310_D10DMH3215	3/15/2018	18	PVC/RCP	Y	Y	N	211	Y	8
		D10	Storm	D10DMH3315	D10DMH3310	D10DMH3315_D10DMH3310		18	RCP	N	N		16		
	Franklin St to Green St	D10	Storm	D10DMH3320	D10DMH3315	D10DMH3320_D10DMH3315	3/15/2018	12	RCP	Y	Y	Y	23	Y	1
		D10	Storm	D10DMH3325	D10DMH3320	D10DMH3325_D10DMH3320	3/15/2018	12	RCP	Y	Y	N	122	N	
	Auburn St to William St	D12	Storm	D12DMH6650	D12DMH6648	D12DMH6650_D09DMH6648	9/18/2012	15	RCP	N	Y	Y	106	N	
		D12	Storm	D09DMH6648	D09DMH6645	D12DMH6648_D09DMH6645	9/18/2012	15	RCP	N	Y	N	111	N	
	William St to Cottage St	D12	Storm	D09DMH6645	D12DMH6640	D09DMH6645_D12DMH6640	9/19/2012	18	RCP	N	Y	Y	68	N	
		D12	Storm	D12DMH6640	D12DMH6636	D12DMH6640_D12DMH6636	9/19/2012	18	RCP	N	Y	N	151	N	
	Cottage St to Perry St	D12	Storm	D12DMH6636	D12DMH6630	D12DMH6636_D12DMH6630	9/21/2012	24	RCP	N	Y	Y	293	UNK	
	Perry St to Lawrence St	D12	Storm	D12DMH6630	D12DMH6625	D12DMH6630_D12DMH6625	9/21/2012	24	RCP	N	Y	Y	240	N	
	Lawrence St to Corp McTernan St	D12	Storm	D12DMH6625	D12DMH6620	D12DMH6625_D12DMH6620	9/24/2012	24	RCP	N	Y	N	108	N	
		D12	Storm	D12DMH6620	D12DMH6615	D12DMH6620_D12DMH6615	9/24/2012	24	RCP	N	Y	N	125	Y	1
	Corp McTernan St	D12	Storm	D12DMH6615	D12DMH6610	D12DMH6615_D12DMH6610	2/26/2018	24	RCP	Y	Y	N	7	N	
	Corp McTernan St to Erie St	D12	Storm	D12DMH6610	ACCESS352	D12DMH6610_FITT3773	2/26/2018	40x26	RCP	Y (ref: "ACCESS")	Y	N	229	Y	1
Putnam Ave to Allston St	D12	Storm	D12DMH7325	D12DMH7320	D12DMH7325_D12DMH7320	2/26/2013	15	RCP	N	Y	N	314	N		
Allston St to Hamilton St	D12	Storm	D12DMH7320	D12DMH7315	D12DMH7320_D12DMH7315	2/25/2013	24	RCP	N	Y	N	237	N		
	D12	Storm	D12DMH7315	D12DMH7310	D12DMH7315_D12DMH7310	2/26/2013	24	RCP	N	Y	N	16	N		
Hamilton St to Erie St	D12	Storm	D12DMH7305	S29COM0055 (Suspect ACCESS352)	S29SMH1315_S29SMH0055	10/13/2009	40x26	RCP	N	Y	Y	221	Y	5	
Hamilton St	Magazine Street to Pearl Street	D12	Storm	D12DMH7310	D12DMH7305	D12DMH7310_D12DMH7305	2/26/2018	36	RCP	Y	Y	Y	14	N	
		D12	Storm	D12DMH6910	D12DMH6905	D12DMH6910_D12DMH6905	9/21/2012	12	RCP	N	Y	N	247	N	
Perry Street	Magazine Street to Pearl Street	D12	Storm	D12DMH6905	D12DMH6630	D12DMH6905_D12DMH6630	2/28/2018	12	RCP	Y	Y	N	15	N	
		D10	Storm	D10DMH2425	D10DMH2422	D10DMH2425_D10DMH2422	2/27/2017	18	RCP	Y	Y	N	71	Y	1
Pilgrim Street	Landsdowne St to Brookline Pl	D10	Storm	D10DMH2422	D10DMH2420	D10DMH2422_D10DMH2420	2/27/2017	18	RCP	Y	Y	N	66	Y	2
		D10	Storm	D10DMH2420	D10DMH2415	D10DMH2420_D10DMH2415	2/27/2017	18	DI	Y	Y	N	86	N	
		D10	Storm	D10DMH2410	D10DMH2405	D10DMH2410_D10DMH2405	2/28/2017	18	RPM	Y	Y	Y	55	N	
	Brookline Pl to Brookline St	D10	Storm	D10DMH2405	D10DMH1340	D10DMH2405_D10DMH1340	2/28/2017	48	RPM	Y	N	UNK	105	N	
		D10	Storm	D10DMH2415	D10DMH2410	D10DMH2415_D10DMH2410	2/28/2017	18	RPM	Y	N	UNK	49	N	
		D10	Sewer	S23SMH0805	S23SMH0815	S23SMH0805_S23SMH0815	2/27/2017	12	PVC	Y	N	UNK	21	NA	NA
		D10	Sewer	S23SMH0815	S23SMH0800	S23SMH0815_S23SMH0800	2/27/2017	12	PVC	Y	N	UNK	190	NA	NA
		D10	Storm	D10DMH2405	D10DMH1340	D10DMH2405_D10DMH1340	3/16/2018	24	PE	Y	Y	Y	103	N	
D10	Storm	D10DMH2415	D10DMH2410	D10DMH2415_D10DMH2410	3/16/2018	18	PE	Y	Y	Y	46	N			
Putnam Ave	Newton St to Pearl St	D12DMH9110A		D12DMH9105	D12DMH9105	D12DMH9110_D12DMH9105	3/1/2018	12	RCP	Y	Y	Y	81	Y	1
	Pearl St	D12DMH9110		D12DMH9110A	D12DMH9110A	D12DMH9110_D12DMH9110A	3/1/2018	12	RCP	Y	Y	N	128	N	
		D12	Storm	D12DMH9105	D12DMH7325	D12DMH9105_D12DMH7325	3/1/2018	12	RCP	Y	Y	Y	26	N	
		D12	Storm	D12DMH9205	D12DMH7325	D12DMH9205_D12DMH7325	2/27/2018	10	CP	Y	Y	N	28	N	
	Brookline St to Pearl St	D12	Storm	D12DMH9205	D12DMH7325	D12DMH9205_D12DMH7325-2	3/1/2018	8	CAS	Y	Y	N	28	N	
		D12	Storm	D12DMH9215	D12DMH9210	D12DMH9215_D12DMH9210	2/27/2018	12	CP	Y	Y	Y	243	N	
	Brookline St to Sidney St	D12	Storm	D12DMH9210	D12DMH9205	D12DMH9210_D12DMH9205	2/27/2018	10	CP	Y	Y	Y	250	N	
		D12	Storm	D12DMH0917	D12DMH0915	D12DMH0917_D12DMH0915	2/28/2018	15	RCP	Y	Y	N	29	N	
	Sydney St to Grove Ave	D12	Storm	D12DMH0915	D12DMH0913	D12DMH0915_D12DMH0913	2/28/2018	18	RCP	Y	Y	Y	111	Y	1
		D12	Storm	D12DMH0913	D12DMH0910	D12DMH0913_D12DMH0910	2/28/2018	18	RCP	Y	Y	Y	88	Y	1
Grove Ave to Waverly St	D12	Storm	D12DMH0910	D12DMH0715	D12DMH0910_D12DMH0715	2/28/2018	18	RCP	Y	Y	N	209	N		
Salem Street	Auburn St to Watson St	D10	Storm	D10DMH2775	D10DMH2720	D10DMH2775_D10DMH2715	2/24/2017	12	RCP	Y	Y	N	67	N	
		D10	Storm	D10DMH2860	D10DMH2855	D10DMH2860_D10DMH2855	3/6/2017	12	RCP	Y	Y	N	63	N	
		D10	Storm	D10DMH2855	D10DMH2810	D10DMH2855_D10DMH2810	3/6/2017	12	RCP	Y	N	UNK	18	N	
		D10	Sewer	S23SMH3810	S23SMH3715	S23SMH3810_S23SMH3715	3/6/2017	8	VCP	Y	N	UNK	225	NA	NA
Franklin St to Pilgrim St	D10	Storm	ACCESS101	ACCESS100	D10UGS0015	3/23/2018	36"	RCP	Y	Y	Y	234	Y	9	
	D10	Storm	ACCESS100	D10DMH1210	D10UGS0015	3/23/2018	36"	RCP	Y	Y	Y	243.2	Y	6	

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Sidney Street	Pilgrim St to Pacific St	D10	Storm	D10DMH1210	D10DMH0545	D10DMH1210_FIT1350	4/21/2006	38x36	Brick	N	Y	Y	234	Y	6
	Tudor St to Pacific St	D10	Storm	D10DMH0605	D10DMH0600	D10DMH0605_D10DMH0600	2/7/2008	18	RCP	N	Y	N	36	N	
		D10	Storm	D10DMH0600	D10DMH0545	D10DMH0600_FIT7409/FIT7409_D10DMH0545	3/21/2018	20	RCP	Y	Y	Y	100	N	
	Emily St to Tudor St	D10	Storm	D12DMH0425	D12DMH0615	D12DMH0425_D12DMH0615	3/21/2018	20	RCP	Y	Y	Y	107	N	
		D10	Storm	D12DMH0615	D10DMH0610	D10DMH0615_D10DMH0610	3/21/2018	20	RCP	Y	Y	Y	61	N	
		D10	Storm	D10DMH0610	D10DMH0605	D10DMH0610_D10DMH0605	3/21/2018	20	RCP	Y	Y	Y	77	N	
	Allston St to Hamilton St	D10	Storm	D12DMH6505	D12DMH6500	D12DMH6505_D12DMH6500	4/19/2017	18	RCP	N	Y	N	165	Y	1
		D12	Storm	D12DMH6500	D12DMH6405	D12DMH6500_D12DMH6405	4/20/2017	18	RCP	N	Y	N	48	N	
	Hamilton St to Erie St	D12	Storm	D12DMH6405	D12DMH6400	D12DMH6405_D12DMH6400	4/20/2017	18	RCP	N	Y	N	110	Y	1
		D12	Storm	D12DMH6400	(labeled as D12DMH0200 in report, typo)	D12DMH0205 FIT7644_D12DMH0205	3/8/2017	18	RCP	Y	Y	Y	116	Y	
	Henry St to Chestnut St	D12	Storm	D12DMH0950	D12DMH0945	D12DMH0950_D12DMH0945	2/28/2018	15	RCP	Y	Y	N	30	N	
		D12	Storm	D12DMH0945	D12DMH0940	D12DMH0945_D12DMH0940	2/28/2018	15	RCP	Y	Y	N	103	N	
		D12	Storm	D12DMH0940	D12DMH0935	D12DMH0940_D12DMH0935	2/28/2018	18	RCP	Y	Y	N	150	N	
		D12	Storm	D12DMH0935	D12DMH0930	D12DMH0935_D12DMH0930	2/28/2018	18	RCP	Y	Y	N	49	N	
	Chestnut St to Fort Washington Pl	D12	Storm	D12DMH0930	D12DMH0925	D12DMH0930_D12DMH0925	2/28/2018	18	RCP	Y	Y	N	41	N	
	Chestnut St to Putnam Ave	D12	Storm	D12DMH0925	D12DMH0920	D12DMH0925_D12DMH0920	2/28/2018	18	RCP	Y	Y	N	208	Y	1
	Fort Washington Pl	D12	Storm	D12DMH0920	D12DMH0915	D12DMH0920_D12DMH0915	2/28/2018	18	RCP	Y	Y	Y	80	N	
Emily St to Erie St	D12	Storm	D12DMH6250	D12DMH0425	D12DMH6250_D12DMH0425	2/27/2018	10	VCP	Y	Y	Y	233	Y	2	
	D12	Storm	D12DMH6250	D12DMH0425	D12DMH6250_D12DMH0425	2/27/2018	10	PE	Y	Y	N	9	N		
	D12	Storm	D12DMH0425	D12DMH0420	D12DMH0425_D12DMH0420A	2/27/2018	18	RCP	Y	Y	Y	47	N		
	D12	Storm	D12DMH0420A	D12DMH0420	D12DMH0420A_D12DMH0420	2/27/2018	18	RCP	Y	Y	Y	113	Y	1	
	D12	Storm	D12DMH0420	D12DMH0415	D12DMH0420_D12DMH0415	3/1/2018	18	RCP	Y	Y	N	26	Y	1	
	D12	Storm	D12DMH0420	D12DMH0415	D12DMH0420_D12DMH0415	3/1/2018	15	RCP	Y	Y	N	77	Y	1	
	D12	Storm	D12DMH0415	D12DMH0405	D12DMH0415_D12DMH0405	3/1/2018	15	RCP	Y	Y	N	164	Y	2	
Allston St	D12	Storm	D12DMH0405	D12DMH0400	D12DMH0405_D12DMH0400	3/1/2018	15	RCP	Y	Y	Y	55	Y	1	
Speridakis Terrace	Pearl St	D10	Storm	D12DMH1213	D12DMH1210	D12DMH1213_D12DMH1210	3/8/2018	18	RCP	Y	Y	Y	18	N	
Speridakis Terrace	Pearl St	D10	Storm	D10DMH2460	D10DMH2457	D10DMH2460_D10DMH2457	3/15/2018	10	PVC/VCP	Y	Y	N	216	N	
Tudor Street	Brookline St to Sidney St	D10	Storm	D10DMH1155 (Also labeled S23COM0710?)	D10DMH0720	D10DMH1155_D10DMH0720	2/8/2017 & 2/7/2008	10	VCP	N	Y	Y	375	Y	8
		D10	Storm	D10DMH0720	D10DMH0605	D10DMH0720_D10DMH0605	3/23/2018	18	RCP	Y	Y	Y	36	N	N/A
		D10	Storm	FIT8197	D10DMH2105	FIT8197_D10DMH2105		18	RCP	N	N		45		
Upton Street	Pleasant St to Magazine St	D12	Storm	D12DMH8010	D12DMH8005	D12DMH8010_FIT7000	10/28/2014	15	VCP	N	Y	N	247	Y	4
		D12	Storm	D12DMH8005	D12DMH7545	FIT7267_D12DMH7545	10/28/2014	15	RCP	N	Y	Y	201	Y	1
		D12	Storm	D12DMH7545	D12DMH7544	D12DMH7545_D12DMH7544	10/28/2014	15	RCP	N	Y	N	19	N	
Valentine Street	Pearl St to Brookline St	D10	Storm	D10DMH2330	D10DMH2315	D10DMH2330_D10DMH2315	3/23/2017	15	RCP	N	Y	Y	249	Y	6
		D10	Storm	D10DMH2315	D10DMH2020 (Suspect D10DMH2032)	D10DMH2315_D10DMH2032	3/23/2017	15	RCP	N	Y	Y	30	Y	1
		D10	Storm	D10DMH2455	D10DMH2310	D10DMH2455_D10DMH2130	3/23/2017	10	PVC	N	Y	Y	157	N	
		D10	Storm	D10DMH2020 (Suspect D10DMH2032)	D10DMH2031	D10DMH2032_D10DMH2031	3/23/2017	15	RCP	N	Y	Y	16	N	
		D10	Storm	D10DMH2031	D10DMH2030	D10DMH2031_D10DMH2030	3/24/2017	15	PVC	N	Y	Y	175	Y	4
		D10	Storm	D10DMH1120	D10DMH1115	D10DMH1120_D10DMH1115	3/30/2018	15	RCP	Y	Y	Y	92	N	
		D10	Storm	D10DMH1115	D10DMH1110	D10DMH1115_D10DMH1110	3/30/2018	18	RCP	Y	Y	Y	201	Y	1
		D10	Storm	D10DMH1110	D10DMH1105	D10DMH1110_D10DMH1105	3/30/2018	18	RCP	Y	Y	Y	136	Y	1
		D10	Storm	D10DMH1105	D10DMH0280	D10DMH1105_D10DMH0280		21	UNK	N	N	N	179		

Street	Area	Catchment Area	Type	Upstream Manhole	Downstream Manhole	GIS FacilityID	CCTV Date	Pipe Size (in)	Pipe Material	Report (Y/N)	Video (Y/N)	Stagnant Flow Visible (Y/N)	CCTV Pipe Length (ft)	Lateral Connections into SD (Y/N/NA)	No. of Lateral Connections into SD (#)	
Vassar St	Amhurst Ally to Mass Ave	D10	Storm	D10DMH0280	D10DMH0241	D10DMH0280_D10DMH0241		24	RCP	N	N		101			
		D10	Storm	D10DMH0290	D10DMH0241	D10DMH0290_D10DMH0241		24	RCP	N	N		35			
		D10	Storm	D10DMH6965	D10DMH0290	S22COM0750_D10DMH0290		24	UNK	N	N		208			
		D10	Storm	FIT0006	D10DMH6965	FIT0006_D10DMH6965		3/30/2018	24	DI	Y	Y	Y	152	N	
		D10	Storm	D10DMH6975	FIT0006	D10DMH6975_FIT0006		3/30/2018	24	DI	Y	Y	Y	54	N	
		D10	Storm	D10DMH6980	D10DMH6975	D10DMH6980_D10DMH6975		3/30/2018	21	RCP	Y	Y	Y	51	N	
		D10	Storm	D10DMH6985	D10DMH6980	D10DMH6985_D10DMH6980		3/30/2018	12	RCP	Y	Y	Y	20	N	
		Pacific St	D10	Storm	D10DMH6990	D10DMH6985	D10DMH6990_D10DMH6985	3/30/2018	12	RCP	Y	Y	Y	101	N	
		D10	Storm	D10DMH0242	D10DMH0241	D10COM0241_D10COM0235	3/29/2018	69x64	Brick	Y	Y	Y	15	N		
		D10	Sewer	S22COM0025	D10DMH0242			12	UNK	N	N		49			
		D10	Sewer	S22COM0020	D10DMH0242	S22SMH0020_FIT9278	3/29/2018	12	VCP	Y	Y	Y	0.1			
		D10	Storm	D10DMH2720	D10DMH2715	D10DMH2720_D10DMH2715	2/24/2017	12	VCP	Y	Y	N	18	N		
Watson Street	Pearl St to Brookline St	D10	Storm	D10DMH2715	D10DMH2712	D10DMH2715_D10DMH2712	2/24/2017	12	VCP	Y	Y	Y	181	N		
		D10	Storm	D10DMH2712	D10DMH2710	D10DMH2712_D10DMH2710	2/24/2017	12	PVC	Y	Y	N	184	Y	1	
		D10	Storm	D10DMH2710	D10DMH2705	D10DMH2710_D10DMH2705	2/24/2017	12	VCP	Y	Y	N	18	N		
		D10	Sewer	S23SMH3415	S23SMH3410	S23SMH3415_S23SMH3410	2/24/2017	8	VCP	Y	N	N	182	NA	NA	
		D10	Sewer	S23SMH3410	D10DMH2705	S23SMH3410_D10DMH2705	2/25/2017	8	VCP	Y	N	N	245	NA	NA	
		D10	Storm	FIT1420	D10DMH2720	FIT1420_D10DMH2720	3/16/2018	10	RCP	Y	Y	N	40	N		
Waverly Street	Erie St to Talbot St	D12	Storm	D12DMH0815	D12DMH0815A (Suspect D10DMH0810)	FIT7415_FIT7440	4/18/2017	15	RCP	N	Y	N	236	Y	3	
		D12	Storm	D12DMH0810	D12DMH0805	FIT7441_D12DMH0805	4/18/2017	18	RCP	N	Y	Y	160	N		
	Merriam St to Pacific St	D10	Storm	D10DMH1250	D10DMH1245	D10DMH1250_D10DMH1245	7/8/2016	12	RCP	N	Y	N	329	N		
		D10	Storm	D10DMH1245	D10DMH1240	D10DMH1245_D10DMH1240	7/8/2016	12	DI	N	Y	Y	109	N		
	Putnam Ave to Talbot St	D12	Storm	D12DMH0715	D12DMH0710	D12DMH0715_D12DMH0710		30	RCP	N	N		179			
		D12	Storm	D12DMH0710	D12DMH0705	D12DMH0710_D12DMH0705		30	RCP	N	N		93			
		D12	Storm	D12DMH0705	D12DMH0700	FIT7435_D12DMH0705	3/6/2018	30	RCP	Y	Y	N	27	N		
	Putnam Ave To Erie St	D12	Storm	D12DMH0805	D12DMH0705	D12DMH0805_D12DMH0705	3/6/2018	30	RCP	Y	Y	Y	73	N		
		D12	Storm	D12DMH0605	D12DMH0700	D12DMH0605_FIT7436	3/6/2018	54	RCP	Y	Y	N	30	N		
		D12	Storm	ACCESS231	D12DMH0605	FIT7417_D12DMH0605	3/6/2018	54	RCP	Y	Y	N	467	Y	2	
	Albany St (Erie St)	D12	Storm	D12DMH6210	D10DMH0305	D12DMH6210_D10DMH0305	3/9/2018	12	RCP	Y	Y	Y	38	Y	1	
					D12DMH6210	D12DMH0308 (suspect D12DMH0305)	D12DMH6210_D12DMH0308	3/8/2018	10	PVC	Y	Y	Y	123	N	
				D12DMH0308 (suspect D12DMH0305)	D10DMH0240	D12DMH0308_D10DMH0240	3/8/2018	12	RCP	Y	Y	Y	8	N		
Putnam St to Chestnut St	D12	Storm	D12DMH0720	D12DMH0715	D12DMH0720_D12DMH0715		30	RCP	N	N		214				
William Street	River Street to Magazine Street	D12	Storm	D12DMH8215	D12DMH8210	FIT0245_FIT6643	11/19/2014	15	VCP	N	Y	N	185	Y	1	
		D12	Storm	D12DMH8210	D12DMH7563	FIT7319_D12DMH7563	11/19/2014	18	RCP	N	Y	Y	185	Y	1	
		D12	Storm	D12DMH7563	D12DMH7560	D12DMH7563_D12DMH7560	4/30/2008	18	PVC	N	Y	N	12	N		
	Magazine St to Pearl St	D12	Storm	D12DMH7110	D12DMH7105	D12DMH7110_D12DMH7105	9/18/2012	12	RCP	N	Y	N	263	N		
		D12	Storm	D12DMH7105	D09DMH6645	D12DMH7105_D09DMH6645	9/18/2012	12	RCP	N	Y	Y	17	N		

**APPENDIX D**  
**BUILDING INSPECTION RESULTS TABLE**

Cambridgeport Stormwater Improvements (IDDE)

Buildings Inspected

Date: 4/20/2021

Legend	
	No Illicit Connection
	Confirmed Illicit Connection
	Inconclusive

No	Street	Building No.	Drain Laterals	Drain Lateral Location	Building Type	Owners Contact Information	Building Contact Information	Scheduled Inspection	Actual Inspection	Confirmed Compliant by Inspection (Y/N)	Uploaded Inspection Form	Mailed Certified Letter	Certified Letter Received	Notes
1	Albany	235	4	2 laterals on Pacific St 2 laterals on Albany St	Dorm	MIT Office of the Treasurer 238 Main St - Suite 200 Cambridge, MA 02142			Monday 8/6/2018 9:30 AM	Y	Y			
2	Albany	224	5	5 laterals on Pacific St	University	MIT Office of the Treasurer 238 Main St - Suite 200 Cambridge, MA 02142			8/6/2018 Wednesday 8/15/2018 8:00 AM	Y	Y			Dye test during initial inspection was not observed in sewer or stormwater manhole. After reviewing MIT plans observed there were sewer pumps. Second dye test was done directly in sewer pumps until it set released to sewer on Pacific St.
3	Albany	190	7	7 laterals on Pacific St	University	MIT Office of the Treasurer 238 Main St - Suite 200 Cambridge, MA 02142			8/6/2018 Wednesday 8/15/2018 8:30 AM	Y	Y			Dye test during initial inspection was not observed in sewer or stormwater manhole suspected dye was getting backed up in internal pipeline. Second dye testing was done in cleanout before sewer service leaves building to Albany St.
4	Albany	230	2	2 laterals on Albany St	University	MIT Office of the Treasurer 238 Main St - Suite 200 Cambridge, MA 02142			Wednesday 8/15/2018 9:00 AM	Y	Y			
5	Albany St	270	1	1 lateral on Albany St	Commercial	BMR-270 Albany St LLC 5694 Mission Center Rd, 602-800 San Diego, CA 92108			Wednesday, 6/13/18 11:00AM	Y	Y			
6	Albany St	281	2	2 laterals on Albany St	Commercial	MIT Office of the Treasurer 238 Main St - Suite 200 Cambridge, MA 02142 Unit 1: Jacob Ben David Zimmerman 43 Allston St, Cambridge MA 02139 Unit 2: Smith, Maple L 43 Allston St, Cambridge MA 02139 Unit 3: Park, Daniel J & Susan Y Park 43 Allston St, Cambridge MA 02139	Celeste Brooks celeste.brooks@am.ill.com 617-886-6810 Unit 1: Jacob Ben David Zimmerman 43 Allston St, Cambridge MA 02139 Unit 2: Smith, Maple L 43 Allston St, Cambridge MA 02139 Unit 3: Park, Daniel J & Susan Y Park 43 Allston St, Cambridge MA 02139	Joe Medeiros 617-780-9078 jmedeiros@emcor.net Taju Animashaun	Monday, 6/25/18 10:30 AM	Y	Y			
7	Allston St	43	2	2 laterals on Allston St	Multi-Residential		Danny Park dpar01@gmail.com	Monday 6/25/18	Monday 6/25/18	Y	Y			
8	Brookline St	201	1	1 lateral on Erie St	Residential	Ann Realty Corporation P.O. Box 2215, Acton, MA 01720-2215	Tom Norman, Unit #2: 413-363-3472	Unit 4: 8:30 AM 10/10/18	10/10/2018	Y	Y			
9	Brookline St	105/107	1	1 lateral on Brookline St	Residential	Real Estate Management and Investment 103 Hemenway St, Boston MA 02115 617-421-9900 Koplow, Rose TR OF C/O 76 Wellesley Rd LLC 103 Hemenway St STE #82 Boston MA 02115 (Contacted 7/16/18)	Tom Norman, Unit #2: 413-363-3472	Unit #2: Tuesday 4/3/18 10:00AM	Unit #2: Tuesday 4/3/18 10:00AM	Y	Y			Real Estate Management and Investment 103 Hemenway St, Boston MA 02115
10	Brookline St	35	1	1 lateral on Franklin St	Multi-Residential	Central Property Limited Partnership C/O Riverside Management PO Box 440317, West Somerville, MA 02144 (Contacted 7/17/18)	Berry Smith, 617-719-6432 David Kender, 415-515-3584	Wednesday, 9/12/2018	9/12/2018	Y	Y			
11	Brookline St	19	1	1 lateral on Brookline St	Commercial	Craigie Associates LLC 907 Mass Ave, Cambridge MA 02139 617-868-6254	Ralph, (617) 547-6559		8/31/2018	Y	Y			
12	Brookline St	21	2	2 laterals on Brookline St	Residential	Auburn Court Apartments Maddlyn Joyce, 617-354-6061		Friday, 9/7/2018	Friday, 9/7/2018	Y	Y			
13	Brookline St	70	2	2 laterals on Brookline St	Residential	Auburn Court Apartments Maddlyn Joyce, 617-354-6061		Friday, 9/7/2018	Friday, 9/7/2018	Y	Y			
14	Brookline St	88	1	1 lateral on Brookline St	Residential	Auburn Court Apartments Maddlyn Joyce, 617-354-6061		Friday, 9/7/2018	Friday, 9/7/2018	Y	Y			
15	Brookline St	66	1	1 lateral on Brookline St	Residential	Auburn Court Apartments Maddlyn Joyce, 617-354-6061		Friday, 9/7/2018	Friday, 9/7/2018	Y	Y			
16	Brookline St	57/59	2	2 lateral on Brookline St	Residential	Raymond, Monica 57 Brookline St, Cambridge MA 02139-4141 Cotter, Amy A. 53 Brookline St, Cambridge MA 02139 617-416-4003 Stan Lee 55 Brookline St, Cambridge MA 02139 617-388-9510		Friday, 9/7/2018	Friday, 9/7/2018	Y	Y			Raymond, Monica 57 Brookline St, Cambridge MA 02139-4141
17	Brookline St	53/55	3	3 laterals on Brookline St	Residential	Unit 1: Kurdzial, Anne 99 Brookline St, Cambridge MA 02139 Unit 2: HSL, Gilbert T 99 Brookline St, Cambridge MA 02139 Unit 3: Hammond Khaleed 99 Brookline St, Cambridge MA 02139	Unit 3: Jay O'Connell 617-504-4297 jgoye196@gmail.com Unit 1: Guillermo Gonzales ggonz49@yahoo.com	Unit 1: 8:00AM 10/10/18 Unit 3: 10:30AM 10/10/18 Unit 1: 12:00 PM 10/10/18	Unit 3: 10/10/18 Unit 1: 10/10/18 Unit 4: 9/27/18	Y	Y			Unit 1: Kurdzial, Anne 99 Brookline St, Cambridge MA 02139 Unit 2: HSL, Gilbert T 99 Brookline St, Cambridge MA 02139 Unit 3: Hammond Khaleed 99 Brookline St, Cambridge MA 02139
18	Brookline St	99	1	1 lateral on Brookline St	Residential	Unit 1: Kurdzial, Anne 99 Brookline St, Cambridge MA 02139 Unit 2: HSL, Gilbert T 99 Brookline St, Cambridge MA 02139 Unit 3: Hammond Khaleed 99 Brookline St, Cambridge MA 02139	Unit 3: Jay O'Connell 617-504-4297 jgoye196@gmail.com Unit 1: Guillermo Gonzales ggonz49@yahoo.com	Unit 1: 8:00AM 10/10/18 Unit 3: 10:30AM 10/10/18 Unit 1: 12:00 PM 10/10/18	Unit 3: 10/10/18 Unit 1: 10/10/18 Unit 4: 9/27/18	Y	Y			Unit 1: Kurdzial, Anne 99 Brookline St, Cambridge MA 02139 Unit 2: HSL, Gilbert T 99 Brookline St, Cambridge MA 02139 Unit 3: Hammond Khaleed 99 Brookline St, Cambridge MA 02139
19	Brookline St	155	Unk		Residential	Brigs Property Management 176 Mass Ave, Arlington, MA 02174 781-648-9600 Unit 199: Lutz, Jeremy & Lynn Ann Simpson Unit 201: Yamashita, Dennis, Trustee, The Dennis S. Yamashita Trust	Lynn Simpson, lynn.simpson@gmail.com	Unit 1: 8:00AM 10/10/18 Unit 3: 10:30AM 10/10/18 Unit 1: 12:00 PM 10/10/18	Unit 3: 10/10/18 Unit 1: 10/10/18 Unit 4: 9/27/18	Y	Y			
20	Corporal McTernan St	20	6	6 laterals on Corporal McTernan St	Apartment Building	Brigs Property Management 176 Mass Ave, Arlington, MA 02174 781-648-9600 Unit 199: Lutz, Jeremy & Lynn Ann Simpson Unit 201: Yamashita, Dennis, Trustee, The Dennis S. Yamashita Trust	Lynn Simpson, lynn.simpson@gmail.com	Unit 1: 8:00AM 10/10/18 Unit 3: 10:30AM 10/10/18 Unit 1: 12:00 PM 10/10/18	Unit 3: 10/10/18 Unit 1: 10/10/18 Unit 4: 9/27/18	Y	Y			
21	Erie St	199/201	2	2 laterals on Erie St	Multi-Residential	C/O Paradigm Tax Group, LLC 5694 Mission Center Rd, 602-800 San Diego, CA 92108 C/O Paradigm Tax Group, LLC 5694 Mission Center Rd, 602-800 San Diego, CA 92109	Lynn Simpson, lynn.simpson@gmail.com	Wednesday, 5/16/18 11:00 AM	Wednesday, 5/16/18 11:30 AM	Y	Y			
22	Erie St	47	4	4 laterals on Erie St	Parking Garage	C/O Paradigm Tax Group, LLC 5694 Mission Center Rd, 602-800 San Diego, CA 92108 C/O Paradigm Tax Group, LLC 5694 Mission Center Rd, 602-800 San Diego, CA 92109			Wednesday, 6/13/18 10:00AM	Y	Y			
23	Erie St	21	5	5 laterals on Erie St	Commercial	C/O Paradigm Tax Group, LLC 5694 Mission Center Rd, 602-800 San Diego, CA 92109			Wednesday, 6/13/18 10:30AM	Y	Y			
24	Erie St	40	3	3 laterals on Sidney St	Commercial	C/O Paradigm Tax Group, LLC 5694 Mission Center Rd, 602-800 San Diego, CA 92110	Paul Koslowski paul.koslowski@biomedrealty.com	Jeff Chase 617-551-5923 858-243-2817	Wednesday, 6/13/2021 Thursday, 7/12/18 2:00 PM	Y	Y			

25	Erie St	150	2	2 laterals on Erie St	Apartment Building	Cambridge Housing Authority	Zelda, 617-499-7007	Thursday 7/19/18 9:30 PM	Thursday 4/19/18 7:30AM	Y	Y		
26	Erie St	133	1	1 lateral on Erie St	Residential				9/27/2018	Y	Y		
27	Erie St	153/151/161/163	1	1 lateral on Erie St	Residential	Huang, Chia-Ling 98 Sharon St Medford MA 02155	Amy Huang 617-906-3434	151/153/165: 9:00AM 10/10/18 161: 11:00AM 10/10/18	10/10/2018	Y	Y		
28	Erie St	98			Multi-Residential	Unit 14: Mary Lou Sullivan 617-416-6325			Tuesday 8/7/2018 8:00AM	Y	Y		
29	Erie St	99			Commercial				9/12/2018	Y	Y		
30	Fairmont St	6	1	1 lateral on Magazine St	Multi-Residential	Cambridge Housing Authority	64 Magee St jwhalen@cambridge-housing.org 617-499-7114	Wednesday 6/18/18 Thursday 7/17/18: 8:00 AM	Unit 1: Wednesday 6/18/18 Unit 2,3,4,5: Thursday 7/19/18 8:00AM	Y	Y		
31	Franklin St	177	1	1 lateral on Franklin St	Multi-Residential	Craigie Associates LLC 907 Mass Ave, Cambridge MA 02139 617-868-0254 (Contacted 7/16/18)	Ralph, (617) 547-6559		8/31/2008	Y	Y		Craigie Associates LLC 907 Mass Ave, Cambridge MA 02139
32	Green St	187	1	1 lateral on Green St	Multi-Residential	Chapel St Trust Trey 617-733-4488 (Contacted 7/16/18)	Dave, 617-783-9151	11/13/2018 10:30	11/13/2018 10:30	Y	Y		All Bright Real Estate 1247A Commonwealth Ave Allston, MA 02134
33	Hamilton St	202	1	1 lateral on Hamilton St	Residential	Zusy, Catherine and Samuel C Kendall 202 Hamilton St, Cambridge MA 02139-3924	Cathy Zusy 202 Hamilton St Cambridge MA 617-868-0489 617-460-2716	Thursday, 7/12/18 1:00PM	7/12/2018	Y	Y		Zusy Catherine and Samuel C Kendall 202 Hamilton St Cambridge MA
34	Hamilton St	205/207	1	1 lateral on Hamilton St	Residential	Unit 205: Chris, 617-372-0905 Unit 207: Upteker, David and Wambui Githiora			Unit 207: Monday, 6/18/18 10:00 AM Unit 205: Monday 6/18/18 12:30 PM	Y	Y		
35	Hamilton St	199/201			Residential	Unit 1: Fatima Cabral, 617-864-0905		Thursday, 7/12/18 1:30PM	7/12/2018	Y	Y		
36	Lopez St, Rollins Ct	27/29_3/5/6	1	1 lateral on Lopez St	Multi-Residential	Unit 1: Nason, Steven C. Unit 2: Clariza, Todd T. & Oksana L. Berezovska Rollins Court Unit 3: Natalia: 617-286-2777 Unit 4: Cattonar, Maren M. 4 Rollins Ct Unit 4 Cambridge, MA 02139 Unit 5: Joe Lin, joe.lin@comcast.net Unit 6: Vega, Cecilia	Steve Nason: 617-877-4564 Todd Clariza: toddclariza@gmail.com	Lopez St Unit 29: Tuesday 4/3/18 8:30 AM Rollins Ct Unit 27: Wednesday 6/13/18 7:30 AM Rollins Ct Unit 5: Thursday 4/12/18 11:00 AM Unit 6: Wednesday 6/13/18 1:00 PM	Lopez St Unit 29: Tuesday 4/3/18 8:30 AM Unit 27: Wednesday 6/13/18 7:30 AM Rollins Ct Unit 5: Thursday 4/12/18 11:00 AM Unit 6: Wednesday 6/13/18 1:00 PM	Y	Y		Cattonar, Maren M. 4 Rollins Ct Unit 4 Cambridge, MA 02139 Vega, Cecilia 6 Rollins Ct Cambridge, MA 02139
37	Magazine St	73	1	1 lateral on Magazine St	Apartment Building	Rolls Management Inc. 1125 Commonwealth Ave Allston MA 02134 617-787-1188	Bill, 617-921-2523	Thursday, 7/12/18 9:00AM	7/12/2018	Y	Y		Rolls Management Inc. 1125 Commonwealth Ave Allston MA 02134 617-787-1188
38	Magazine St	77/59	2	2 laterals on Magazine St	Apartment Building	Rolls Management Inc. 1125 Commonwealth Ave Allston MA 02134 617-787-1188	Bill, 617-921-2523	Thursday, 7/12/18 9:00AM	7/12/2018	Y	Y		Rolls Management Inc. 1125 Commonwealth Ave Allston MA 02134 617-787-1188
39	Magazine St	60	1	1 lateral on Magazine St	Single family home				Wednesday, 5/16/18 10:30 AM	Y	Y		
40	Mass Ave	472	1		Commercial	Nabil Sater 617-864-3278 Ext 234 nabil@midwestclub.com			Thursday, 7/19/18 10:30 AM	Y	Y		
41	Mass Ave	492	1	1 lateral on Brookline St	Commercial	CENTRAL PROPERTY LIMITED PARTNERSHIP C/O RIVERSIDE MANAGEMENT P.O. BOX #440317 WEST SOMERVILLE, MA 02144			8/31/2018	Y	Y		
42	Mass Ave	534			School/Dance Studio				10/15/2018	Y	Y		
43	Mass Ave	548			Restaurant	Gindy Singh 781-704-1654 gsingh3939@gmail.com			12/19/2018	Y	Y		548 and 550 Mass Ave shared basement with two separate sewer services to Mass Ave.
44	Mass Ave	550			Commercial				10/15/2018	Y	Y		
45	Mass Ave	564			Commercial				10/15/2018	Y	Y		
46	Mass Ave	576			Commercial				10/15/2018	Y	Y		
47	Mass Ave	600			Commercial	Tom Cifrino (Supreme Liquors) 617-825-8481			10/15/2018 11/2/2018	N	Y		building has (2) sewer services; (1) to Mass Ave and (1) to Green St. On 10/15/18 confirmed d sewer service to Mass Ave sewer. On 11/2/2018 could not confirm sewer service to Green St due to back up in service.
48	Mass Ave	620			Commercial				10/16/2018	Y	Y		
49	Mass Ave	632			Residential/Commercial				10/16/2018	Y	Y		
50	Mass Ave	684			Restaurant/Residential				10/16/2018	Y	Y		
51	Mass Ave	694			Restaurant/Residential				10/16/2018	Y	Y		
52	Mass Ave	738			Restaurant				10/16/2018	Y	Y		
53	Mass Ave	738			Restaurant				10/16/2018	Y	Y		
54	Massachusetts Ave	750	1	1 lateral on Mass Ave	Commercial				Wednesday, 4/6/18	N	Y		
55	Memorial Drive	362	2	2 laterals on Amherst Alley	University	MIT Office of the Treasurer 238 Main St - Suite 200 Cambridge, MA 02143			Tuesday 8/7/2018 12:00 PM	Y	Y		
56	Memorial Drive	372	1	1 lateral on Amherst Alley	University	Larry Stable 617-599-7888 Lstable@comcast.net			Wednesday 9/19/2018 8:30AM	Y	Y		
57	Memorial Drive	400/403	1	1 lateral on Amherst Alley	University				Tuesday 8/7/2018 1:00 PM	Y	Y		
58	Memorial Drive	407	1	1 lateral on Amherst Alley	University	MIT Office of the Treasurer 238 Main St - Suite 200 Cambridge, MA 02147			Wednesday 8/15/2018 10:00 AM	Y	Y		
59	Memorial Drive	410	1	4 lateral on Amherst Alley	University	MIT Office of the Treasurer 238 Main St - Suite 200 Cambridge, MA 02148			Wednesday 8/15/2018 10:30 AM	Y	Y		
60	Pacific	70	1	1 lateral on Pacific St	Dorm	MIT Office of the Treasurer 238 Main St - Suite 200 Cambridge, MA 02142	Nick Fatta JLL 238 Main St, Suite 501 Cambridge, MA 02142 617-498-0911		Monday 8/6/2018 9:00 AM	Y	Y		
61	Pacific St	117	1	1 lateral on Brookline St	Residential				Friday, 9/7/2018	Y	Y		
62	Pacific St	119			Residential				9/19/2018	Y	Y		
63	Pearl St	107	1	1 lateral on Cottage St	Residential		Colburn, Deborah A.	Thursday, 4/12/18 10:30 AM	Thursday, 4/12/18 9:30 AM	Y	Y		
64	Pearl St	155/157/159	1	1 lateral on Pearl St	Multi-Residential	Gani, Mohammad Abdul and Tahamina A, Gani 318 Franklin St, Cambridge, MA 02139 617-999-4573		Monday, 6/18/18 8:00 AM	Monday 6/18/18 8:30 AM	Y	Y		Gani, Mohammad Abdul and Tahamina A, Gani 318 Franklin St, Cambridge, MA 02139
65	Pearl St	214/216	2	2 laterals on Hamilton St	Multi-Residential	Nathanson, Wilma L.	Wilma Nathanson, #214 Unit 1: 617-491-7320 Jay Pastorello, #216 Unit 2: 603-396-6545	214 Unit 1: Tuesday 4/9/18 11:30 AM 216 Unit 2: Thursday 4/12/18 9:00 AM	214 Unit 1: Tuesday 4/2/18 11:30 AM 216 Unit 2: Thursday 4/12/18 9:00 AM	Y	Y		
66	Pilgrim St	30	5	3 laterals on Pacific St	Parking Garage				Friday 8/31/2018, Friday 9/7/2018	Y	Y		

67	Sidney St	254	1	1 lateral on Sidney St	Multi-Residential	HRI Putnam LLC 280 Franklin St, Cambridge, MA 02139 CJO Homeowner's Rehab, Inc. 280 Franklin St, Cambridge, MA 02139 617-868-4858	Danny Tompkins dtompkins@winnc.com 617-864-7334	Monday, 6/25/18 9:00 AM	Unit 4: Thursday 4/12/18 1:00 PM Unit 5: Thursday 4/12/18 1:15 PM Unit 1,2,3,6: Thursday 6/28/18 9:00 AM	Y	Y			
68	Sidney St	240	3	2 laterals on Allston St and 1 lateral on Putnam Ave	Apartment Building	Sidney Grove LLC 66 Long Wharf, Boston, MA 02110 CJO Morris & Morse Company, Inc. 33 Union St, Manchester-by-the-Sea, MA 01944 617-723-6404	Matt, 617-308-2947 (Building Manager)	Wednesday, 4/4/18 11:00AM	Wednesday, 4/4/18 10:30M	Y	Y			
69	Sidney St	200			Commercial			Jeff Chase: 617-551-5923 858-243-2818	Thursday, 7/12/18 2:00 PM	Y	Y			
70	Sidney St	197			Residential				10/12/2018	Y	Y			
71	Sidney St	179			Commercial				9/21/2018	Y	Y			
72	Sidney St	201			Commercial				9/12/2018	Y	Y			
73	Sidney St	45			Commercial				Friday, 8/31/2018	Y	Y			
74	Sidney St	75			Commercial				Friday, 8/31/2018	Y	Y			
75	Sidney St	64		2 laterals on Sidney St	Commercial				Friday, 8/31/2018	Y	Y			
76	Sidney St	38		1 lateral on Sidney St	Commercial				Friday, 8/31/2018	Y	Y			
77	Sidney St	91		3 laterals on Pacific St	Apartment Building				Friday, 8/31/2018	Y	Y			
78	Sidney St	88		1 lateral on Pacific St	Technology				Friday, 8/31/2018	Y	Y			
79	Valentine St	6/8/19	UNK		Residential				9/27/2018	Y	Y			
80	Vassar St	218	1	1 lateral on Vassar St	Healthcare Center (MIT)	Sho Yiu, MIT Department of Facilities, cyu@mit.edu 617-224-6983		Thursday 4/19/18 7:15AM	Thursday 8/19/18 7:30AM	N	Y			
81	Vassar St	201		2	University	MASSACHUSETTS INSTITUTE OF TECHNOLOGY C/O OFFICE OF THE TREASURER 238 MAIN ST, SUITE 200 CAMBRIDGE, MA 02142			Tuesday 8/7/2018 9:00 AM	Y	Y			
82	Vassar St	229	UNK		Student Dorm	MASSACHUSETTS INSTITUTE OF TECHNOLOGY C/O OFFICE OF THE TREASURER 238 MAIN ST, SUITE 200 CAMBRIDGE, MA 02142			Tuesday 8/7/2018 10:00 AM	Y	Y			
83	Woodrow Wilson Court	9	3	1 lateral on Chalk St 2 laterals on Magazine St	Apartment Building	Cambridge Housing Authority 362 Green St, 3rd Floor, Cambridge, MA 02139 617-864-3020	Joe Whalen 64 Magazine St jwhalen@cambridge-housing.org 617-499-7114	Wednesday 6/13/18	Wednesday 6/13/18	N*	Y	Y		*Could not confirm compliant through inspection due to numerous sewer stacks. Confirmed through sampling.



**APPENDIX E**  
**LAB REPORTS**



## ANALYTICAL REPORT

Lab Number:	L1815834
Client:	Stantec 226 Causway Street 6th Floor Boston, MA 02114
ATTN:	Justin Martinez
Phone:	(617) 314-7105
Project Name:	ON-CALL CAMBRIDGE 2016 - IDDE
Project Number:	195130078.400
Report Date:	05/08/18

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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Eight Walkup Drive, Westborough, MA 01581-1019  
508-898-9220 (Fax) 508-898-9193 800-624-9220 - [www.alphalab.com](http://www.alphalab.com)



**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE  
**Project Number:** 195130078.400

**Lab Number:** L1815834  
**Report Date:** 05/08/18

<b>Alpha Sample ID</b>	<b>Client ID</b>	<b>Matrix</b>	<b>Sample Location</b>	<b>Collection Date/Time</b>	<b>Receive Date</b>
L1815834-01	ACCESS 229-2	WATER	Not Specified	05/03/18 09:00	05/03/18
L1815834-02	ACCESS 229-1	WATER	Not Specified	05/03/18 08:45	05/03/18
L1815834-04	12DMH7520	WATER	Not Specified	05/03/18 10:35	05/03/18

**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE  
**Project Number:** 195130078.400

**Lab Number:** L1815834  
**Report Date:** 05/08/18

### Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

#### HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE  
**Project Number:** 195130078.400

**Lab Number:** L1815834  
**Report Date:** 05/08/18

**Case Narrative (continued)**

Sample Receipt

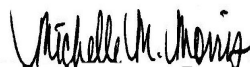
The project name, project number and analyses performed were specified by the client.

E. Coli (MF)

L1815834-02: The sample has an elevated detection limit due to the dilution required by the method.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:



Michelle M. Morris

Title: Technical Director/Representative

Date: 05/08/18

# **INORGANICS & MISCELLANEOUS**

**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE**Lab Number:** L1815834**Project Number:** 195130078.400**Report Date:** 05/08/18**SAMPLE RESULTS**

Lab ID: L1815834-01

Date Collected: 05/03/18 09:00

Client ID: ACCESS 229-2

Date Received: 05/03/18

Sample Location: Not Specified

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab										
E. Coli (MF)	130		col/100ml	2.0	NA	2	-	05/03/18 15:40	121,9213D	AJ



**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE**Lab Number:** L1815834**Project Number:** 195130078.400**Report Date:** 05/08/18**SAMPLE RESULTS**

Lab ID: L1815834-02

Date Collected: 05/03/18 08:45

Client ID: ACCESS 229-1

Date Received: 05/03/18

Sample Location: Not Specified

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab										
E. Coli (MF)	ND		col/100ml	2.0	NA	2	-	05/03/18 15:40	121,9213D	AJ





**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE  
**Project Number:** 195130078.400

**Lab Number:** L1815834  
**Report Date:** 05/08/18

**SAMPLE RESULTS**

**Lab ID:** L1815834-04  
**Client ID:** 12DMH7520  
**Sample Location:** Not Specified

**Date Collected:** 05/03/18 10:35  
**Date Received:** 05/03/18  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>Microbiological Analysis - Westborough Lab</b>										
E. Coli (MF)	98000		col/100ml	100	NA	100	-	05/03/18 15:40	121,9213D	AJ
<b>General Chemistry - Westborough Lab</b>										
Nitrogen, Ammonia	32.9		mg/l	0.375	--	5	05/04/18 17:00	05/04/18 23:02	121,4500NH3-BH	AT
Surfactants, MBAS	0.190		mg/l	0.050	--	1	05/04/18 06:15	05/04/18 06:44	121,5540C	GD



Project Name: ON-CALL CAMBRIDGE 2016 - IDDE

Lab Number: L1815834

Project Number: 195130078.400

Report Date: 05/08/18

**Method Blank Analysis**  
**Batch Quality Control**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab for sample(s): 01-02,04 Batch: WG1112415-1										
E. Coli (MF)	ND		col/100ml	1.0	NA	1	-	05/03/18 15:40	121,9213D	AJ
General Chemistry - Westborough Lab for sample(s): 04 Batch: WG1112514-1										
Surfactants, MBAS	ND		mg/l	0.050	--	1	05/04/18 06:15	05/04/18 06:43	121,5540C	GD
General Chemistry - Westborough Lab for sample(s): 04 Batch: WG1112611-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	05/04/18 17:00	05/04/18 22:43	121,4500NH3-BH	AT

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE

**Project Number:** 195130078.400

**Lab Number:** L1815834

**Report Date:** 05/08/18

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
General Chemistry - Westborough Lab Associated sample(s): 04 Batch: WG1112514-2								
Surfactants, MBAS	92		-		65-126	-		
General Chemistry - Westborough Lab Associated sample(s): 04 Batch: WG1112611-2								
Nitrogen, Ammonia	96		-		80-120	-		20

### Matrix Spike Analysis Batch Quality Control

**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE  
**Project Number:** 195130078.400

**Lab Number:** L1815834  
**Report Date:** 05/08/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 04 QC Batch ID: WG1112514-4 QC Sample: L1815834-04 Client ID: 12DMH7520												
Surfactants, MBAS	0.190	0.4	0.600	102	-	-	-	-	52-157	-	-	32
General Chemistry - Westborough Lab Associated sample(s): 04 QC Batch ID: WG1112611-4 QC Sample: L1815916-01 Client ID: MS Sample												
Nitrogen, Ammonia	16.7	4	20.6	98	-	-	-	-	80-120	-	-	20

## Lab Duplicate Analysis

Batch Quality Control

**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE

**Project Number:** 195130078.400

**Lab Number:** L1815834

**Report Date:** 05/08/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 04 QC Batch ID: WG1112514-3 QC Sample: L1815834-04 Client ID: 12DMH7520						
Surfactants, MBAS	0.190	0.200	mg/l	5		32
General Chemistry - Westborough Lab Associated sample(s): 04 QC Batch ID: WG1112611-3 QC Sample: L1815916-01 Client ID: DUP Sample						
Nitrogen, Ammonia	16.7	17.5	mg/l	5		20

**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE**Lab Number:** L1815834**Project Number:** 195130078.400**Report Date:** 05/08/18**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

**Cooler Information**

<b>Cooler</b>	<b>Custody Seal</b>
A	Absent

**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L1815834-01A	Bacteria Cup Na2S2O3 preserved	A	NA		2.4	Y	Absent		E-COLI-MF(.33)
L1815834-01B	Bacteria Cup Na2S2O3 preserved	A	NA		2.4	Y	Absent		E-COLI-MF(.33)
L1815834-02A	Bacteria Cup Na2S2O3 preserved	A	NA		2.4	Y	Absent		E-COLI-MF(.33)
L1815834-02B	Bacteria Cup Na2S2O3 preserved	A	NA		2.4	Y	Absent		E-COLI-MF(.33)
L1815834-03A	Bacteria Cup Na2S2O3 preserved	A	NA		2.4	Y	Absent		-
L1815834-04A	Plastic 950ml unpreserved	A	7	7	2.4	Y	Absent		MBAS-5540(2)
L1815834-04B	Plastic 500ml H2SO4 preserved	A	<2	<2	2.4	Y	Absent		NH3-4500(28)
L1815834-04C	Bacteria Cup Na2S2O3 preserved	A	NA		2.4	Y	Absent		E-COLI-MF(.33)
L1815834-04D	Bacteria Cup Na2S2O3 preserved	A	NA		2.4	Y	Absent		E-COLI-MF(.33)

**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE  
**Project Number:** 195130078.400

**Lab Number:** L1815834  
**Report Date:** 05/08/18

## GLOSSARY

### Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

### Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

### Terms

**Analytical Method:** Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

**Final pH:** As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

**Frozen Date/Time:** With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

**Initial pH:** As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

**Total:** With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

### Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related

Report Format: Data Usability Report



**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE  
**Project Number:** 195130078.400

**Lab Number:** L1815834  
**Report Date:** 05/08/18

#### Data Qualifiers

projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the reporting limit (RL) for the sample.



**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE  
**Project Number:** 195130078.400

**Lab Number:** L1815834  
**Report Date:** 05/08/18

## REFERENCES

- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

## LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



## Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

### Westborough Facility

**EPA 624:** m/p-xylene, o-xylene

**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

**EPA 300:** DW: Bromide

**EPA 6860:** SCM: Perchlorate

**EPA 9010:** NPW and SCM: Amenable Cyanide Distillation

**SM4500:** NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO<sub>2</sub>, NO<sub>3</sub>.

### Mansfield Facility

**SM 2540D:** TSS

**EPA 8082A:** NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

**Biological Tissue Matrix:** EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

### Westborough Facility:

#### Drinking Water

**EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

**EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B**

**EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

**Microbiology: SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

#### Non-Potable Water

**SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:** Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **EPA 351.1, SM4500P-E, SM4500P-B, E,**

**SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D.**

**EPA 624:** Volatile Halocarbons & Aromatics,

**EPA 608:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

**EPA 625:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

**Microbiology: SM9223B-Colilert-QT; Enterolert-QT, SM9221E, SM9222D.**

### Mansfield Facility:

#### Drinking Water

**EPA 200.7:** Al, Ba, Be, Cd, Cr, Cu, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

**EPA 522.**

#### Non-Potable Water

**EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.

**EPA 245.1 Hg.**

**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.



# CHAIN OF CUSTODY

PAGE \_\_\_\_\_ OF \_\_\_\_\_

Date Rec'd in Lab: **5/3/18**

ALPHA Job #: **L1815834**

8 Walkup Drive  
Westboro, MA 01581  
Tel: 508-898-9220

320 Forbes Blvd  
Mansfield, MA 02048  
Tel: 508-822-9300

### Project Information

Project Name:  
Project Location:  
Project #:  
Project Manager:  
ALPHA Quote #:

### Report Information - Data Deliverables

ADEX  EMAIL

### Billing Information

Same as Client info PO #:

### Client Information

Client: **STANTEC**  
Address: **226 CAUSEWAY ST**  
**BOSTON, MA 02114**  
Phone: **8 617-314-7105**  
Email: **justin.martinez@stantec.com**

### Regulatory Requirements & Project Information Requirements

Yes  No MA MCP Analytical Methods  Yes  No CT RCP Analytical Methods  
 Yes  No Matrix Spike Required on this SDG? (Required for MCP Inorganics)  
 Yes  No GW1 Standards (Info Required for Metals & EPH with Targets)  
 Yes  No NPDES RGP  
 Other State /Fed Program \_\_\_\_\_ Criteria \_\_\_\_\_

### Turn-Around Time

Standard  RUSH (only confirmed if pre-approved!)  
Date Due:

Additional Project Information:

**ANALYSIS**

VOC:  8260  624  524.2  
SVOC:  ABN  PAH  
METALS:  MCP 13  MCP 14  RCP 15  
METALS:  RCRA5  RCRA8  
EPH:  Ranges & Targets  Ranges Only  
VPH:  Ranges & Targets  Ranges Only  
 PCB  PEST  
TPH:  Quant Only  Fingerprint

**6. Col**  
**MOA5**  
**NH3**

**SAMPLE INFO**

Filtration  
 Field  
 Lab to do

Preservation  
 Lab to do

**TOTAL # BOTTLES**

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler Initials
		Date	Time		
15834-01	ACCESS 229-2	5/3/18	8:00		JM
02	ACCESS 229-1	5/3/18	8:45		↓
01	ACCESS 229-2	5/3/18	9:00		
02	ACCESS 229-1	5/3/18	8:45		
03	12 DMH 7560	5/3/18	10:30		
04	12 DMH 7520	5/3/18	10:30		
05	12 DMH 7020	5/3/18	10:35		
06	12 DMH 7520	5/3/18	10:35		

**Container Type**  
P= Plastic  
A= Amber glass  
V= Vial  
G= Glass  
B= Bacteria cup  
C= Cube  
O= Other  
E= Encore  
D= BOD Bottle

**Preservative**  
A= None  
B= HCl  
C= HNO<sub>3</sub>  
D= H<sub>2</sub>SO<sub>4</sub>  
E= NaOH  
F= MeOH  
G= NaHSO<sub>4</sub>  
H= Na<sub>2</sub>S<sub>2</sub>O<sub>4</sub>  
I= Ascorbic Acid  
J= NH<sub>4</sub>Cl  
K= Zn Acetate  
Q= Other

Container Type  
Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
<i>Justin Martinez</i>	5/3 12:22 PM	<i>John AAL</i>	5/3/18 12:12
<i>Justin Martinez</i>	5/3/ 13:24	<i>John AAL</i>	5/3/18 13:24

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.  
FORM NO 01-01 (rev. 12-Mar-2012)



## ANALYTICAL REPORT

Lab Number:	L1836861
Client:	Stantec 226 Causway Street 6th Floor Boston, MA 02114
ATTN:	Justin Martinez
Phone:	(617) 314-7105
Project Name:	ON-CALL CAMBRIDGE 2016 - IDDE
Project Number:	195130078.400
Report Date:	09/25/18

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

---

Eight Walkup Drive, Westborough, MA 01581-1019  
508-898-9220 (Fax) 508-898-9193 800-624-9220 - [www.alphalab.com](http://www.alphalab.com)



**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE  
**Project Number:** 195130078.400

**Lab Number:** L1836861  
**Report Date:** 09/25/18

<b>Alpha Sample ID</b>	<b>Client ID</b>	<b>Matrix</b>	<b>Sample Location</b>	<b>Collection Date/Time</b>	<b>Receive Date</b>
L1836861-01	SYDNEY/ERIE S-8	WATER	CAMBRIDGE, MA	09/17/18 10:24	09/17/18
L1836861-02	S-15 BROOKLINE/DECATUR	WATER	CAMBRIDGE, MA	09/17/18 11:20	09/17/18

**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE  
**Project Number:** 195130078.400

**Lab Number:** L1836861  
**Report Date:** 09/25/18

### Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

#### HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Cristin Walker

Title: Technical Director/Representative

Date: 09/25/18

# **INORGANICS & MISCELLANEOUS**

**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE**Lab Number:** L1836861**Project Number:** 195130078.400**Report Date:** 09/25/18**SAMPLE RESULTS**

Lab ID: L1836861-01

Date Collected: 09/17/18 10:24

Client ID: SYDNEY/ERIE S-8

Date Received: 09/17/18

Sample Location: CAMBRIDGE, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab										
E. Coli (MF)	770		col/100ml	10	NA	10	-	09/17/18 18:20	121,9213D	AJ





**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE**Lab Number:** L1836861**Project Number:** 195130078.400**Report Date:** 09/25/18**SAMPLE RESULTS**

Lab ID: L1836861-02

Date Collected: 09/17/18 11:20

Client ID: S-15 BROOKLINE/DECATUR

Date Received: 09/17/18

Sample Location: CAMBRIDGE, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab										
E. Coli (MF)	5.0		col/100ml	2.0	NA	2	-	09/17/18 18:20	121,9213D	AJ



**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE  
**Project Number:** 195130078.400

**Lab Number:** L1836861  
**Report Date:** 09/25/18

**Method Blank Analysis**  
**Batch Quality Control**

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab for sample(s): 01-02 Batch: WG1157941-1									
E. Coli (MF)	ND	col/100ml	1.0	NA	1	-	09/17/18 18:20	121,9213D	AJ

**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE**Lab Number:** L1836861**Project Number:** 195130078.400**Report Date:** 09/25/18**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

**Cooler Information****Cooler**                      **Custody Seal**

A                                      Absent

**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L1836861-01A	Bacteria Cup Na2S2O3 preserved	A	NA		3.6	Y	Absent		E-COLI-MF(.33)
L1836861-01B	Bacteria Cup Na2S2O3 preserved	A	NA		3.6	Y	Absent		E-COLI-MF(.33)
L1836861-02A	Bacteria Cup Na2S2O3 preserved	A	NA		3.6	Y	Absent		E-COLI-MF(.33)
L1836861-02B	Bacteria Cup Na2S2O3 preserved	A	NA		3.6	Y	Absent		E-COLI-MF(.33)

**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE  
**Project Number:** 195130078.400

**Lab Number:** L1836861  
**Report Date:** 09/25/18

## GLOSSARY

### Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

### Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

### Terms

**Analytical Method:** Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

**Final pH:** As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

**Frozen Date/Time:** With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

**Initial pH:** As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

**Total:** With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

**Report Format:** Data Usability Report



**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE  
**Project Number:** 195130078.400

**Lab Number:** L1836861  
**Report Date:** 09/25/18

#### Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedances are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the reporting limit (RL) for the sample.

**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE  
**Project Number:** 195130078.400

**Lab Number:** L1836861  
**Report Date:** 09/25/18

## REFERENCES

- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

## LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



## Certification Information

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The following analytes are not included in our Primary NELAP Scope of Accreditation:

### Westborough Facility

**EPA 624:** m/p-xylene, o-xylene

**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

**EPA 300:** DW: Bromide

**EPA 6860:** SCM: Perchlorate

**EPA 9010:** NPW and SCM: Amenable Cyanide Distillation

**SM4500:** NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO<sub>2</sub>, NO<sub>3</sub>.

### Mansfield Facility

**SM 2540D:** TSS

**EPA 8082A:** NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

**Biological Tissue Matrix:** EPA 3050B

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The following analytes are included in our Massachusetts DEP Scope of Accreditation

### Westborough Facility:

#### Drinking Water

**EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

**EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B**

**EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

#### Non-Potable Water

**SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **EPA 351.1, SM4500P-E, SM4500P-B, E,**

**SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D.**

**EPA 624:** Volatile Halocarbons & Aromatics,

**EPA 608:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

**EPA 625:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, SM9222D.**

### Mansfield Facility:

#### Drinking Water

**EPA 200.7:** Al, Ba, Be, Cd, Cr, Cu, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

**EPA 522.**

#### Non-Potable Water

**EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.

**EPA 245.1 Hg.**

**SM2340B**

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For a complete listing of analytes and methods, please contact your Alpha Project Manager.



# CHAIN OF CUSTODY

PAGE 1 OF 1

8 Walkup Drive  
Westboro, MA 01581  
Tel: 508-898-9220

320 Forbes Blvd  
Mansfield, MA 02043  
Tel: 508-822-9300

### Project Information

Project Name: on-call Cambridge 2016 IODE

Project Location: Cambridge, MA

Project #: 195130078.400

Project Manager: Sandy-Kae Gray

ALPHA Quote #:

Date Rec'd in Lab: 9-17-18

ALPHA Job #: L1836861

Report Information - Data Deliverables

ADEX  EMAIL  Same as Client info PO #:

### Client Information

Client: Stantec

Address: 226 Causeway St  
Boston, MA

Phone: 617.314.7105

Email: Justin.Martinez@stantec.com

### Turn-Around Time

Standard  RUSH (only confirmed if pre-approved)

Date Due:

### Regulatory Requirements & Project Information Requirements

Yes  No MA MCP Analytical Methods  Yes  No CT RCP Analytical Methods

Yes  No Matrix Spike Required on this SDG? (Required for MCP Inorganics)

Yes  No GW1 Standards (Info Required for Metals & EPH with Targets)

Yes  No NPDES RGP

Other State / Fed Program Criteria

Additional Project Information:

ANALYSIS		SAMPLE INFO	TOTAL # BOTTLES
VOC: <input type="checkbox"/> 8260 <input type="checkbox"/> 624 <input type="checkbox"/> 324.2	SVOC: <input type="checkbox"/> ABN <input type="checkbox"/> PAH		
METALS: <input type="checkbox"/> MCP 13 <input type="checkbox"/> MCP 14 <input type="checkbox"/> RCP 15	METALS: <input type="checkbox"/> RCR15 <input type="checkbox"/> RCR16 <input type="checkbox"/> RCR18 <input type="checkbox"/> RCR19	Preservation <input type="checkbox"/> Lab to do	
EPH: <input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only	VPH: <input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only		
PCB: <input type="checkbox"/> PEST	TPH: <input type="checkbox"/> Quant Only <input type="checkbox"/> Fingerprint		
F-CO/1			
Sample Comments			

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler Initials
		Date	Time		
<u>36861-01</u>	<u>Sydney / Erie S-8</u>	<u>9/17/18</u>	<u>10:24 AM</u>		<u>AMH</u>
	<del><u>Erie / Sydney S-8</u></del>				
<u>02</u>	<u>S-15 Brookline / Decatur</u>	<u>9/17/18</u>	<u>11:20 AM</u>		<u>AMH</u>

- Container Type**
- P= Plastic
  - A= Amber glass
  - V= Vial
  - G= Glass
  - B= Bacteria cup
  - C= Cube
  - O= Other
  - E= Encore
  - D= BOD Bottle
- Preservative**
- A= None
  - B= HCl
  - C= HNO<sub>3</sub>
  - D= H<sub>2</sub>SO<sub>4</sub>
  - E= NaOH
  - F= MeOH
  - G= NaHSO<sub>4</sub>
  - H= Na<sub>2</sub>S<sub>2</sub>O<sub>8</sub>
  - I= Ascorbic Acid
  - J= NH<sub>4</sub>Cl
  - K= Zn Acetate
  - O= Other

Container Type	Preservative
<u>P</u>	<u>A</u>

Relinquished By:	Date/Time	Received By:	Date/Time
<u>[Signature]</u>	<u>9/17/18 12:30PM</u>	<u>[Signature]</u>	<u>9/17/18 12:30PM</u>
<u>[Signature]</u>	<u>9/17 1245</u>	<u>[Signature]</u>	<u>9/17/18 1245</u>

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO. 01-01 (rev. 12-Mar-2012)





## ANALYTICAL REPORT

Lab Number:	L1836906
Client:	Stantec 226 Causway Street 6th Floor Boston, MA 02114
ATTN:	Justin Martinez
Phone:	(617) 314-7105
Project Name:	ON-CALL CAMBRIDGE 2016 - IDDE
Project Number:	195130078.400
Report Date:	09/25/18

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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Eight Walkup Drive, Westborough, MA 01581-1019  
508-898-9220 (Fax) 508-898-9193 800-624-9220 - [www.alphalab.com](http://www.alphalab.com)



**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE  
**Project Number:** 195130078.400

**Lab Number:** L1836906  
**Report Date:** 09/25/18

<b>Alpha Sample ID</b>	<b>Client ID</b>	<b>Matrix</b>	<b>Sample Location</b>	<b>Collection Date/Time</b>	<b>Receive Date</b>
L1836906-01	PLEASANT/MASS AVE	WATER	CAMBRIDGE, MA	09/17/18 13:10	09/17/18
L1836906-02	PEARL/MASS AVE	WATER	CAMBRIDGE, MA	09/17/18 13:45	09/17/18

**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE  
**Project Number:** 195130078.400

**Lab Number:** L1836906  
**Report Date:** 09/25/18

### Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

#### HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Cristin Walker

Title: Technical Director/Representative

Date: 09/25/18

# **INORGANICS & MISCELLANEOUS**

**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE  
**Project Number:** 195130078.400

**Lab Number:** L1836906  
**Report Date:** 09/25/18

**SAMPLE RESULTS**

**Lab ID:** L1836906-01  
**Client ID:** PLEASANT/MASS AVE  
**Sample Location:** CAMBRIDGE, MA

**Date Collected:** 09/17/18 13:10  
**Date Received:** 09/17/18  
**Field Prep:** Not Specified

**Sample Depth:**  
**Matrix:** Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>Microbiological Analysis - Westborough Lab</b>										
E. Coli (MF)	60		col/100ml	2.0	NA	2	-	09/17/18 18:20	121,9213D	AJ
<b>General Chemistry - Westborough Lab</b>										
Nitrogen, Ammonia	5.66		mg/l	0.075	--	1	09/18/18 16:00	09/18/18 20:46	121,4500NH3-BH	AT
Surfactants, MBAS	ND		mg/l	0.050	--	1	09/18/18 06:00	09/18/18 08:43	121,5540C	GD



**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE**Lab Number:** L1836906**Project Number:** 195130078.400**Report Date:** 09/25/18**SAMPLE RESULTS**

Lab ID: L1836906-02

Date Collected: 09/17/18 13:45

Client ID: PEARL/MASS AVE

Date Received: 09/17/18

Sample Location: CAMBRIDGE, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab										
E. Coli (MF)	2.0		col/100ml	2.0	NA	2	-	09/17/18 18:20	121,9213D	AJ



Project Name: ON-CALL CAMBRIDGE 2016 - IDDE

Lab Number: L1836906

Project Number: 195130078.400

Report Date: 09/25/18

**Method Blank Analysis**  
**Batch Quality Control**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab for sample(s): 01-02 Batch: WG1157941-1										
E. Coli (MF)	ND		col/100ml	1.0	NA	1	-	09/17/18 18:20	121,9213D	AJ
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1157990-1										
Surfactants, MBAS	ND		mg/l	0.050	--	1	09/18/18 06:00	09/18/18 08:33	121,5540C	GD
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1158036-1										
Nitrogen, Ammonia	ND		mg/l	0.075	--	1	09/18/18 16:00	09/18/18 20:27	121,4500NH3-BH	AT

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE

**Project Number:** 195130078.400

**Lab Number:** L1836906

**Report Date:** 09/25/18

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1157990-2								
Surfactants, MBAS	100		-		65-126	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1158036-2								
Nitrogen, Ammonia	98		-		80-120	-		20



**Matrix Spike Analysis**  
Batch Quality Control

**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE  
**Project Number:** 195130078.400

**Lab Number:** L1836906  
**Report Date:** 09/25/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1157990-4 QC Sample: L1800009-90 Client ID: MS Sample												
Surfactants, MBAS	ND	0.4	0.320	80	-	-	-	-	52-157	-	-	32
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1158036-4 QC Sample: L1836820-01 Client ID: MS Sample												
Nitrogen, Ammonia	0.112	4	3.94	96	-	-	-	-	80-120	-	-	20

## Lab Duplicate Analysis

*Batch Quality Control*

**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE

**Project Number:** 195130078.400

**Lab Number:** L1836906

**Report Date:** 09/25/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1157990-3 QC Sample: L1800009-90 Client ID: DUP Sample						
Surfactants, MBAS	ND	ND	mg/l	NC		32
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1158036-3 QC Sample: L1836820-01 Client ID: DUP Sample						
Nitrogen, Ammonia	0.112	0.120	mg/l	7		20

**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE**Lab Number:** L1836906**Project Number:** 195130078.400**Report Date:** 09/25/18**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

**Cooler Information**

<b>Cooler</b>	<b>Custody Seal</b>
A	Absent

**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L1836906-01A	Bacteria Cup Na2S2O3 preserved	A	NA		2.3	Y	Absent		E-COLI-MF(.33)
L1836906-01B	Bacteria Cup Na2S2O3 preserved	A	NA		2.3	Y	Absent		E-COLI-MF(.33)
L1836906-01C	Plastic 500ml H2SO4 preserved	A	<2	<2	2.3	Y	Absent		NH3-4500(28)
L1836906-01D	Plastic 950ml unpreserved	A	7	7	2.3	Y	Absent		MBAS-5540(2)
L1836906-02A	Bacteria Cup Na2S2O3 preserved	A	NA		2.3	Y	Absent		E-COLI-MF(.33)
L1836906-02B	Bacteria Cup Na2S2O3 preserved	A	NA		2.3	Y	Absent		E-COLI-MF(.33)

**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE  
**Project Number:** 195130078.400

**Lab Number:** L1836906  
**Report Date:** 09/25/18

## GLOSSARY

### Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

### Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

### Terms

**Analytical Method:** Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

**Final pH:** As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

**Frozen Date/Time:** With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

**Initial pH:** As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

**Total:** With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

**Report Format:** Data Usability Report



**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE  
**Project Number:** 195130078.400

**Lab Number:** L1836906  
**Report Date:** 09/25/18

#### Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedances are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the reporting limit (RL) for the sample.

**Project Name:** ON-CALL CAMBRIDGE 2016 - IDDE  
**Project Number:** 195130078.400

**Lab Number:** L1836906  
**Report Date:** 09/25/18

## REFERENCES

- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

## LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



## Certification Information

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The following analytes are not included in our Primary NELAP Scope of Accreditation:

### Westborough Facility

**EPA 624:** m/p-xylene, o-xylene

**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

**EPA 300:** DW: Bromide

**EPA 6860:** SCM: Perchlorate

**EPA 9010:** NPW and SCM: Amenable Cyanide Distillation

**SM4500:** NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO<sub>2</sub>, NO<sub>3</sub>.

### Mansfield Facility

**SM 2540D:** TSS

**EPA 8082A:** NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.

**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

**Biological Tissue Matrix:** EPA 3050B

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The following analytes are included in our Massachusetts DEP Scope of Accreditation

### Westborough Facility:

#### Drinking Water

**EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

**EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B**

**EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

**Microbiology:** **SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

#### Non-Potable Water

**SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:** Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **EPA 351.1, SM4500P-E, SM4500P-B, E,**

**SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D.**

**EPA 624:** Volatile Halocarbons & Aromatics,

**EPA 608:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

**EPA 625:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

**Microbiology:** **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, SM9222D.**

### Mansfield Facility:

#### Drinking Water

**EPA 200.7:** Al, Ba, Be, Cd, Cr, Cu, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**  
**EPA 522.**

#### Non-Potable Water

**EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.

**EPA 245.1 Hg.**

**SM2340B**

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For a complete listing of analytes and methods, please contact your Alpha Project Manager.



# CHAIN OF CUSTODY

PAGE \_\_\_\_\_ OF \_\_\_\_\_

8 Walkup Drive  
Westboro, MA 01581  
Tel: 508-898-9220

320 Forbes Blvd  
Mansfield, MA 02048  
Tel: 508-822-9300

### Project Information

Project Name: *OLD CALL CAMBRIDGE 2016 ID#15*

Project Location: *CAMBRIDGE MA*

Project #: *195130078.400*

Project Manager: *SANDY KAG GRAY*

ALPHA Quote #:

### Turn-Around Time

Standard  RUSH (only confirmed if pre-approved!)

Date Due:

Date Rec'd in Lab: *09/17/18*

ALPHA Job #: *L1836908*

### Report Information - Data Deliverables

ADEX  EMAIL

### Billing Information

Same as Client info PO #:

### Regulatory Requirements & Project Information Requirements

- Yes  No MA MCP Analytical Methods  Yes  No CT RCP Analytical Methods
- Yes  No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
- Yes  No GW1 Standards (Info Required for Metals & EPH with Targets)
- Yes  No NPDES RGP
- Other State /Fed Program \_\_\_\_\_ Criteria \_\_\_\_\_

### Client Information

Client: *STANTEC*

Address: *226 CAUSEWAY ST  
BOSTON MA*

Phone: *617 314 7105*

Email: *JUSTIN.W.MARTIN@STANTEC.COM*

Additional Project Information:

ANALYSIS										SAMPLE INFO	
VOC:	<input type="checkbox"/> 8260	<input type="checkbox"/> 624	<input type="checkbox"/> 524.2							Filtration	
SVOC:	<input type="checkbox"/> ABN	<input type="checkbox"/> PAH							<input type="checkbox"/> Field		
METALS:	<input type="checkbox"/> MCP 13	<input type="checkbox"/> MCP 14	<input type="checkbox"/> RCP 15							<input type="checkbox"/> Lab to do	
METALS:	<input type="checkbox"/> RCRA5	<input type="checkbox"/> RCRA8	<input type="checkbox"/> PPT-13							Preservation	
EPH:	<input type="checkbox"/> Ranges & Targets	<input type="checkbox"/> Ranges Only							<input type="checkbox"/> Lab to do		
VPH:	<input type="checkbox"/> Ranges & Targets	<input type="checkbox"/> Ranges Only									
TPH:	<input type="checkbox"/> PCB	<input type="checkbox"/> PEST									
	<input type="checkbox"/> Quant Only	<input type="checkbox"/> Fingerprint									
	<i>S-COL</i>	<i>NH3</i>	<i>M BAS</i>								
										Sample Comments	

TOTAL # BOTTLES

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler Initials
		Date	Time		

ALPHA Lab ID (Lab Use Only)	Sample ID	Date	Time	Sample Matrix	Sampler Initials
<i>36908-01</i>	<i>PLEASANT / MASS AVG</i>	<i>9/17</i>	<i>1:10PM</i>		
<i>02</i>	<i>PEARL / MASS AVG</i>	<i>9/17</i>	<i>1:45PM</i>		

- Container Type**
- P= Plastic
  - A= Amber glass
  - V= Vial
  - G= Glass
  - B= Bacteria cup
  - C= Cube
  - O= Other
  - E= Encore
  - D= BOD Bottle
- Preservative**
- A= None
  - B= HCl
  - C= HNO<sub>3</sub>
  - D= H<sub>2</sub>SO<sub>4</sub>
  - E= NaOH
  - F= MeOH
  - G= NaHSO<sub>4</sub>
  - H= Na<sub>2</sub>S<sub>2</sub>O<sub>5</sub>
  - I= Ascorbic Acid
  - J= NH<sub>4</sub>Cl
  - K= Zn Acetate
  - O= Other

Container Type	
Preservative	

Relinquished By:	Date/Time	Received By:	Date/Time
<i>Justin Martin AAC</i>	<i>9/17 2:30PM</i>	<i>Justin Martin AAC</i>	<i>9/17 1430</i>
	<i>9/17 1745</i>	<i>Justin Martin AAC</i>	<i>9/17/18 1745</i>

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.  
FORM NO: 01-01 (rev. 12-Mar-2012)





## ANALYTICAL REPORT

Lab Number:	L2001219
Client:	Stantec 585 Massachusetts Ave. Cambridge, MA 02139
ATTN:	Michael Sullivan
Phone:	() -
Project Name:	CAMB ONCALL
Project Number:	195130078
Report Date:	01/17/20

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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Eight Walkup Drive, Westborough, MA 01581-1019  
508-898-9220 (Fax) 508-898-9193 800-624-9220 - [www.alphalab.com](http://www.alphalab.com)



**Project Name:** CAMB ONCALL  
**Project Number:** 195130078

**Lab Number:** L2001219  
**Report Date:** 01/17/20

<b>Alpha Sample ID</b>	<b>Client ID</b>	<b>Matrix</b>	<b>Sample Location</b>	<b>Collection Date/Time</b>	<b>Receive Date</b>
L2001219-01	D12DMH0805	WATER	CAMBRIDGE, MA	01/10/20 10:15	01/10/20

**Project Name:** CAMB ONCALL  
**Project Number:** 195130078

**Lab Number:** L2001219  
**Report Date:** 01/17/20

### Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

**HOLD POLICY** - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

---

**Project Name:** CAMB ONCALL  
**Project Number:** 195130078

**Lab Number:** L2001219  
**Report Date:** 01/17/20

**Case Narrative (continued)**

Report Submission

L2001219-01: Due to QC failure, the E-Coli results are not valid and cannot be reported.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Caitlin Walukevich

Title: Technical Director/Representative

Date: 01/17/20

# **INORGANICS & MISCELLANEOUS**

Project Name: CAMB ONCALL

Lab Number: L2001219

Project Number: 195130078

Report Date: 01/17/20

## SAMPLE RESULTS

Lab ID: L2001219-01

Date Collected: 01/10/20 10:15

Client ID: D12DMH0805

Date Received: 01/10/20

Sample Location: CAMBRIDGE, MA

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Surfactants, MBAS	ND		mg/l	0.050	--	1	01/11/20 05:30	01/11/20 10:33	121,5540C	JA



**Project Name:** CAMB ONCALL  
**Project Number:** 195130078

**Lab Number:** L2001219  
**Report Date:** 01/17/20

**Method Blank Analysis**  
**Batch Quality Control**

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1329081-1									
Surfactants, MBAS	ND	mg/l	0.050	--	1	01/11/20 05:30	01/11/20 10:30	121,5540C	JA

## Lab Control Sample Analysis

Batch Quality Control

Project Name: CAMB ONCALL

Lab Number: L2001219

Project Number: 195130078

Report Date: 01/17/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1329081-2								
Surfactants, MBAS	104		-		65-126	-		



### Matrix Spike Analysis Batch Quality Control

Project Name: CAMB ONCALL

Lab Number: L2001219

Project Number: 195130078

Report Date: 01/17/20

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1329081-4 QC Sample: L2001186-01 Client ID: MS Sample												
Surfactants, MBAS	0.050	0.4	0.480	108	-	-	-	-	52-157	-	-	32

**Lab Duplicate Analysis**  
*Batch Quality Control*

Project Name: CAMB ONCALL

Project Number: 195130078

Lab Number: L2001219

Report Date: 01/17/20

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1329081-3 QC Sample: L2001186-01 Client ID: DUP Sample						
Surfactants, MBAS	0.050	0.070	mg/l	33	Q	32

Project Name: CAMB ONCALL

Project Number: 195130078

**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

**Cooler Information****Cooler**                      **Custody Seal**

A                                      Absent

**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2001219-01A	Bacteria Cup Na2S2O3 preserved	A	NA		3.9	Y	Absent		-
L2001219-01B	Bacteria Cup Na2S2O3 preserved	A	NA		3.9	Y	Absent		-
L2001219-01C	Plastic 950ml unpreserved	A	7	7	3.9	Y	Absent		MBAS-5540(2)
L2001219-01D	Plastic 60ml unpreserved	A	7	7	3.9	Y	Absent		MBAS-5540(2)

**Project Name:** CAMB ONCALL  
**Project Number:** 195130078

**Lab Number:** L2001219  
**Report Date:** 01/17/20

## GLOSSARY

### Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)  Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

### Footnotes

Report Format: Data Usability Report



**Project Name:** CAMB ONCALL  
**Project Number:** 195130078

**Lab Number:** L2001219  
**Report Date:** 01/17/20

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

### Terms

**Analytical Method:** Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

**Difference:** With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

**Final pH:** As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

**Frozen Date/Time:** With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

**Initial pH:** As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

**PAH Total:** With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

**PFAS Total:** With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

**Total:** With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

### Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the reporting limit (RL) for the sample.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less

Report Format: Data Usability Report



**Project Name:** CAMB ONCALL  
**Project Number:** 195130078

**Lab Number:** L2001219  
**Report Date:** 01/17/20

**Data Qualifiers**

than 5x the RL. (Metals only.)

- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

**Project Name:** CAMB ONCALL  
**Project Number:** 195130078

**Lab Number:** L2001219  
**Report Date:** 01/17/20

## REFERENCES

- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

## LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



## Certification Information

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The following analytes are not included in our Primary NELAP Scope of Accreditation:

### Westborough Facility

**EPA 624/624.1:** m/p-xylene, o-xylene

**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO<sub>2</sub>, NO<sub>3</sub>.

### Mansfield Facility

**SM 2540D:** TSS

**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.

**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

**Biological Tissue Matrix:** EPA 3050B

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The following analytes are included in our Massachusetts DEP Scope of Accreditation

### Westborough Facility:

#### Drinking Water

**EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

**EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**

**EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

**Microbiology: SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

#### Non-Potable Water

**SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

**SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.

**EPA 624.1:** Volatile Halocarbons & Aromatics,

**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

**Microbiology: SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

### Mansfield Facility:

#### Drinking Water

**EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.

**EPA 522.**

#### Non-Potable Water

**EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

**EPA 245.1** Hg.

**SM2340B**

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For a complete listing of analytes and methods, please contact your Alpha Project Manager.





# CHAIN OF CUSTODY

PAGE \_\_\_\_\_ OF \_\_\_\_\_

Date Rec'd in Lab: 1/10/20

ALPHA Job #: L2001219

8 Walkup Drive  
Westboro, MA 01581  
Tel: 508-898-9220

320 Forbes Blvd  
Mansfield, MA 02048  
Tel: 508-822-9300

### Project Information

Project Name: CAMP OXCALL

Project Location: CAMBRIDGE MA

Project #: 195130073

Project Manager:

ALPHA Quote #:

### Turn-Around Time

Standard  RUSH (only confirmed if pre-approved!)

Date Due:

### Report Information - Data Deliverables

ADEX  EMAIL

### Billing Information

Same as Client info PO #:

### Regulatory Requirements & Project Information Requirements

- Yes  No MA MCP Analytical Methods  Yes  No CT RCP Analytical Methods
- Yes  No Matrix Spike Required on this SDG? (Required for MCP Inorganics)
- Yes  No GW1 Standards (Info Required for Metals & EPH with Targets)
- Yes  No NPDES RGP
- Other State /Fed Program \_\_\_\_\_ Criteria \_\_\_\_\_

### Client Information

Client: STANTEC

Address: 585 MASS AVE

Phone: 774 364 1188

Email: MICHAEL.SULLIVAN@STANTEC.COM

Additional Project Information:

ANALYSIS	VOC: <input type="checkbox"/> 8260 <input type="checkbox"/> 624 <input type="checkbox"/> 524.2	SURFACTANTS	E. COLI	Fingerprint	TPH: <input type="checkbox"/> Quant Only <input type="checkbox"/> Ranges Only	PCB <input type="checkbox"/> PEST	VPH: <input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only	EPH: <input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only	METALS: <input type="checkbox"/> MCP 13 <input type="checkbox"/> MCP 14 <input type="checkbox"/> MCP 15	METALS: <input type="checkbox"/> RCRA5 <input type="checkbox"/> RCRA8	SVOC: <input type="checkbox"/> ABN <input type="checkbox"/> PAH

### SAMPLE INFO

- Filtration  Field  Lab to do
- Preservation  Lab to do

TOTAL # BOTTLES

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler Initials	ANALYSIS	SURFACTANTS	E. COLI	Fingerprint	TPH: <input type="checkbox"/> Quant Only <input type="checkbox"/> Ranges Only	PCB <input type="checkbox"/> PEST	VPH: <input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only	EPH: <input type="checkbox"/> Ranges & Targets <input type="checkbox"/> Ranges Only	METALS: <input type="checkbox"/> MCP 13 <input type="checkbox"/> MCP 14 <input type="checkbox"/> MCP 15	METALS: <input type="checkbox"/> RCRA5 <input type="checkbox"/> RCRA8	SVOC: <input type="checkbox"/> ABN <input type="checkbox"/> PAH	VOC: <input type="checkbox"/> 8260 <input type="checkbox"/> 624 <input type="checkbox"/> 524.2	Sample Comments	
		Date	Time																
01219-01	DIADMH0805	1/10/20	10:15AM	GW	MFS			1	1										

- Container Type**
- P= Plastic
  - A= Amber glass
  - V= Vial
  - G= Glass
  - B= Bacteria cup
  - C= Cube
  - O= Other
  - E= Encore
  - D= BOD Bottle
- Preservative**
- A= None
  - B= HCl
  - C= HNO<sub>3</sub>
  - D= H<sub>2</sub>SO<sub>4</sub>
  - E= NaOH
  - F= MeOH
  - G= NaHSO<sub>4</sub>
  - H= Na<sub>2</sub>S<sub>2</sub>O<sub>5</sub>
  - I= Ascorbic Acid
  - J= NH<sub>4</sub>Cl
  - K= Zn Acetate
  - O= Other

Container Type	
Preservative	

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	1/10/20 12:15AM	<i>[Signature]</i>	1/10/20 12:15
<i>[Signature]</i>	1/10/20 10:00	<i>[Signature]</i>	1/10/20 12:11
<i>[Signature]</i>	1/10/20 1:30	<i>[Signature]</i>	1/10/20 1:34

All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.  
FORM NO: 01-01 (rev. 12-Mar-2012)



## ANALYTICAL REPORT

Lab Number:	L2004381
Client:	Stantec 585 Massachusetts Ave. Cambridge, MA 02139
ATTN:	Michael Sullivan
Phone:	(774) 364-1188
Project Name:	CAMB ON CALL
Project Number:	195130078
Report Date:	02/05/20

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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Eight Walkup Drive, Westborough, MA 01581-1019  
508-898-9220 (Fax) 508-898-9193 800-624-9220 - [www.alphalab.com](http://www.alphalab.com)



**Project Name:** CAMB ON CALL  
**Project Number:** 195130078

**Lab Number:** L2004381  
**Report Date:** 02/05/20

<b>Alpha Sample ID</b>	<b>Client ID</b>	<b>Matrix</b>	<b>Sample Location</b>	<b>Collection Date/Time</b>	<b>Receive Date</b>
L2004381-01	D10DMH7525	WATER	CAMBRIDGE	01/30/20 14:45	01/30/20

**Project Name:** CAMB ON CALL  
**Project Number:** 195130078

**Lab Number:** L2004381  
**Report Date:** 02/05/20

### Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

**HOLD POLICY** - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:  Tiffani Morrissey

Title: Technical Director/Representative

Date: 02/05/20

# **INORGANICS & MISCELLANEOUS**

Project Name: CAMB ON CALL

Project Number: 195130078

Lab Number: L2004381

Report Date: 02/05/20

## SAMPLE RESULTS

Lab ID: L2004381-01

Client ID: D10DMH7525

Sample Location: CAMBRIDGE

Date Collected: 01/30/20 14:45

Date Received: 01/30/20

Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>Microbiological Analysis - Westborough Lab</b>										
E. Coli (MF)	40		col/100ml	2.0	NA	2	-	01/30/20 20:52	121,9213D	CO
<b>General Chemistry - Westborough Lab</b>										
Surfactants, MBAS	0.050		mg/l	0.050	--	1	02/01/20 08:00	02/01/20 09:38	121,5540C	JA



Project Name: CAMB ON CALL

Lab Number: L2004381

Project Number: 195130078

Report Date: 02/05/20

**Method Blank Analysis**  
**Batch Quality Control**

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Microbiological Analysis - Westborough Lab for sample(s): 01 Batch: WG1335641-1										
E. Coli (MF)	ND		col/100ml	1.0	NA	1	-	01/30/20 20:52	121,9213D	CO
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1336105-1										
Surfactants, MBAS	ND		mg/l	0.050	--	1	02/01/20 08:00	02/01/20 09:35	121,5540C	JA

## Lab Control Sample Analysis

Batch Quality Control

Project Name: CAMB ON CALL

Project Number: 195130078

Lab Number: L2004381

Report Date: 02/05/20

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1336105-2								
Surfactants, MBAS	96		-		65-126	-		



### Matrix Spike Analysis Batch Quality Control

**Project Name:** CAMB ON CALL  
**Project Number:** 195130078

**Lab Number:** L2004381  
**Report Date:** 02/05/20

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1336105-4 QC Sample: L2004381-01 Client ID: D10DMH7525												
Surfactants, MBAS	0.050	0.4	0.480	108		-	-		52-157	-		32

## Lab Duplicate Analysis

*Batch Quality Control*

Project Name: CAMB ON CALL

Project Number: 195130078

Lab Number: L2004381

Report Date: 02/05/20

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1336105-3 QC Sample: L2004381-01 Client ID: D10DMH7525						
Surfactants, MBAS	0.050	ND	mg/l	NC		32

Project Name: CAMB ON CALL

Project Number: 195130078

**Sample Receipt and Container Information**

Were project specific reporting limits specified?

YES

**Cooler Information****Cooler**                      **Custody Seal**

A                                      Absent

**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>Initial pH</b>	<b>Final pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Frozen Date/Time</b>	<b>Analysis(*)</b>
L2004381-01A	Bacteria Cup Na2S2O3 preserved	A	NA		2.8	Y	Absent		E-COLI-MF(.33)
L2004381-01B	Bacteria Cup Na2S2O3 preserved	A	NA		2.8	Y	Absent		E-COLI-MF(.33)
L2004381-01C	Plastic 950ml unpreserved	A	7	7	2.8	Y	Absent		MBAS-5540(2)

**Project Name:** CAMB ON CALL  
**Project Number:** 195130078

**Lab Number:** L2004381  
**Report Date:** 02/05/20

## GLOSSARY

### Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)  Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

### Footnotes

Report Format: Data Usability Report



**Project Name:** CAMB ON CALL  
**Project Number:** 195130078

**Lab Number:** L2004381  
**Report Date:** 02/05/20

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

### Terms

**Analytical Method:** Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

**Difference:** With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

**Final pH:** As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

**Frozen Date/Time:** With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

**Initial pH:** As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

**PAH Total:** With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

**PFAS Total:** With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA, this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

**Total:** With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

### Data Qualifiers

- A** - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- ND** - Not detected at the reporting limit (RL) for the sample.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less

Report Format: Data Usability Report



**Project Name:** CAMB ON CALL  
**Project Number:** 195130078

**Lab Number:** L2004381  
**Report Date:** 02/05/20

**Data Qualifiers**

than 5x the RL. (Metals only.)

- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.

**Project Name:** CAMB ON CALL  
**Project Number:** 195130078

**Lab Number:** L2004381  
**Report Date:** 02/05/20

## REFERENCES

- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

## LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



## Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

### Westborough Facility

**EPA 624/624.1:** m/p-xylene, o-xylene

**EPA 8260C:** NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

**EPA 8270D:** NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.

**SM4500:** NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO<sub>2</sub>, NO<sub>3</sub>.

### Mansfield Facility

**SM 2540D:** TSS

**EPA 8082A:** NPW: PCB: 1, 5, 31, 87, 101, 110, 141, 151, 153, 180, 183, 187.

**EPA TO-15:** Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene,

3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.

**Biological Tissue Matrix:** EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

### Westborough Facility:

#### Drinking Water

**EPA 300.0:** Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2:** Nitrate-N, Nitrite-N; **SM4500NO3-F:** Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE,**

**EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**

**EPA 332:** Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.

**Microbiology: SM9215B; SM9223-P/A, SM9223B-Colilert-QT, SM9222D.**

#### Non-Potable Water

**SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH:** Ammonia-N and Kjeldahl-N, **EPA 350.1:**

Ammonia-N, **LACHAT 10-107-06-1-B:** Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2:** Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E,**

**SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300:** Chloride, Sulfate, Nitrate.

**EPA 624.1:** Volatile Halocarbons & Aromatics,

**EPA 608.3:** Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II,

Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs

**EPA 625.1:** SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045:** PCB-Oil.

**Microbiology: SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

### Mansfield Facility:

#### Drinking Water

**EPA 200.7:** Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1 Hg.**

**EPA 522.**

#### Non-Potable Water

**EPA 200.7:** Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.

**EPA 200.8:** Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.

**EPA 245.1 Hg.**

**SM2340B**

For a complete listing of analytes and methods, please contact your Alpha Project Manager.





**APPENDIX F**  
**SAMPLING RESULTS TABLE**

Cambridgeport Illicit Connection Survey Results  
4/18/2018

Legend	
	Compliant
	Non-compliant
	Not Sampled

Catchment Area	GIS MAP ID	Street	Area	Testing Reach				Description of Sandbag Placements	Start Date	End Date	E.coli Samples Collected (Y/N)	Field Test Ammonia (Non-Compliant > 0.5 mg/L)	Field Test Surfactants (Non-Compliant > 0.25 mg/L)	Ammonia & Surfactants Sample Collected (Y/N)	Lab Results			Test Result (Compliant, Non-compliant, MH dry)	Comments			
				Upstream Manhole	Downstream & Test Manhole	Drain Laterals Caught by Sample	Possible Illicit Buildings								Sandbag Locations	Report No.	E.coli (cfu/100mL) (Non-Compliant > 235 cfu/100mL)			Ammonia (mg/L) (Non-Compliant > 0.5mg/L)	Surfactants (mg/L) (Non-Compliant > 0.1 mg/L)	
D12	S1	Fairmont St	Pleasant St to Magazine St	D12DMH7715	D12DMH7525	7	3	D12DMH7525	Place in upstream pipe at D12DMH7525 to isolate Fairmont St	5/1/2018	5/3/2018	N	N/A	N/A	N	N/A	N/A	N/A	N/A	MH dry		
	S2	Magazine St	Fairmont St to Upton St	D12DMH7544	D12DMH7520	9	3	D12DMH7520 D12DMH7537 D12DMH7544	Place in upstream pipe at D12DMH7520 to isolate Magazine St, place in branching pipe at D12DMH7537 to prevent flow from Kelly Road, and in upstream pipe at D12DMH7544 to isolate Magazine St and capture flow from Upton St.	5/1/2018	5/3/2018	Y			Y	L1815834	98000	32.9	0.19	Non-Compliant	Included Magazine St from Fairmont St to Upton St, including Upton St, but not including Kelly Rd.	
	S3	Magazine St	Upton St to Cottage St	D12DMH7550	D12DMH7544	6	3	D12DMH7544 D12DMH7550	Place in upstream pipe at D12DMH7544 and downstream pipe at D12DMH7550 to isolate Magazine St and capture flow from Cottage St.	5/1/2018	5/3/2018	N	N/A	N/A	N	N/A	N/A	N/A	N/A	MH dry	Included Magazine St from Upton St to Cottage St, including Cottage St. Originally planned on placing sandbag in D12DMH7563, however could not get MH open, so sandbag relocated to D12DMH7550.	
	S4	Magazine St	William to Auburn St	D12DMH1750	D12DMH7550	5	4	D12DMH7550	Place in upstream pipe at D12DMH7550 to capture flow from two drain lines on Magazine St flow from Auburn St, and flow from William St.	5/1/2018	5/3/2018	N	N/A	N/A	N	N/A	N/A	N/A	N/A	MH Dry	Included Magazine St from Cottage St to Auburn St, including flow from Auburn St and William St.	
	S5	Pearl St	Putnam St to Erie St	D12DMH7325	ACCESS352	5	3	ACCESS352 D12DMH7310	Place in upstream pipe at ACCESS352 to isolate Pearl St, and place at D12DMH7310 to prevent flow from Hamilton St. Allow flow from Allston St and Putnam Ave onto Pearl St.	5/1/2018	5/3/2018	N	N/A	N/A	N	N/A	N/A	N/A	N/A	MH dry	Included flow from Pearl St from Erie St to Putnam St, including flow from Allston St from Magazine St to Brookline St, and flow from Putnam Ave from Magazine St to Brookline St.	
	S6	Erie St	Pearl St to Brookline St	D12DMH6610	D12DMH6030	6	3	ACCESS352 D12DMH6030 D12DMH6610	Place in upstream pipe at D12DMH6030 to isolate Erie St, upstream pipe in ACCESS352 to prevent flow from southern Pearl St and western Erie St, and in downstream pipe at DMH6610 to isolate Pearl St.												Could not sample due to sanding water. Buildings inspected instead.	
	S7	Brookline St	Allston St to Erie St	D12DMH6028	D12DMH6030	21	8	D12DMH6030	Place in upstream pipe at D12DMH6030 to isolate Brookline St	5/1/2018	5/3/2018	N	N/A	N/A	N	N/A	N/A	N/A	N/A	N/A	MH dry	Included flow on Brookline St from Erie St to Allston St.
	S8	Sidney St	Erie St to Emily St	D12DMH6250	D12DMH0400	6	2	D12DMH0400 D12DMH0425	Place in upstream pipe at D12DMH0400 to isolate Sidney St upstream and at D12DMH0425 to isolate Sidney St downstream and allow flow from Emily St.	9/15/2018		Y	0.00	0.25	N	L1836861-01	770	N/A	N/A	Compliant	E. coli levels believed to be residual from standing water in MH; not high enough levels to indicate an illicit connection.	
	S9	Erie St	Brookline St to Sidney St	D12DMH6030	D12DMH0205	5	2	D12DMH6030 D12DMH0205	Place in downstream pipe at D12DMH6030 and upstream pipe at D12DMH0205 to isolate Erie St.												Could not sample due to sanding water. Buildings inspected instead.	
	S10	Waverly St	Allston St	D12DMH1210	D12DMH0805	5	1	D12DMH0805	Place in upstream at D12DMH0805 to isolate flow from Allston St and building 130 Waverly St												Could not sample due to sanding water. Buildings inspected instead.	
	S11	Grove Ave	Allston St to Putnam Ave		ACCESS220			ACCESS229	Place in upstream pipe to isolate flow from Grove Ave	5/1/2018	5/3/2018	Y	N/A	N/A	N	L1815834	ND 130	N/A	N/A	Compliant	Took two e.coli samples in MH ACCESS229 from two active lines. Both samples were compliant.	
	-	Waverley St		D12DMH0810	D12DMH0750	-	-	D12DMH0805	Placed in Manhole outlet invert	1/28/2020	1/30/2020	N	N/A	N/A	N	N/A	N/A	N/A	N/A	MH dry	Post correction inspection	
-	Magazine St		D12DMH7535	D12DMH7515	-	-	D12DMH7525	Placed in Manhole outlet invert	1/28/2020	1/30/2020	Y	N/A	N/A	Y	L2004381	40	N/A	0.5	Compliant	Post correction inspection		
-	Magazine St		D12DMH7530	D12DMH7510	-	-	D12DMH7520	Placed in Manhole channel invert	2/3/2020	2/5/2020	N	N/A	N/A	N	N/A	N/A	N/A	N/A	MH dry	Post correction inspection		
S12	Sidney St	Erie St to Allston St	D12DMH6505	D12DMH0205	7	1	D12DMH0205	Place in pipe coming from Sidney St south of D12DMH0205												Could not sample due to sanding water. Buildings inspected instead.		
D10	S13	Brookline St	Valentine St to Erie St	D10DMH2040	D10DMH2030	5	5	D10DMH2030	Place in pipe coming from Valentine St to prevent flow and conign from Brookline St south of D10DMH2030 to collect sample.	9/15/2018		N	N/A	N/A	N					MH Dry		
	S14	Valentine St	Brookline St to Pearl St	D12DMH6620	D10DMH2030	11	7	D10DMH2030	Place in pipe coming from Valentine St to collect sample.	9/15/2018		N	N/A	N/A	N					MH Dry		
	S15	Brookline St	Valentine St to Decatur St	D10DMH2030	D10DMH2020	8	4	D10DMH2020 D10DMH2030	Place in downstream pipe at D10DMH2030 to prevent flow and downstream pipe at D10DMH2020 to collect sample	9/15/2018		Y	0	0.25	N	L1836861-01	5	N/A	N/A	Compliant		
	S16	Tudor St	Brookline St to Sidney St	D10DMH1162	D10DMH0720	8	2	D10DMH0720	Place on invert at D10DMH0720 to collect sample.	9/15/2018		N	N/A	N/A	N					MH Dry		
	S17	Pearl St	Franklin St to Mass Ave	D10DMH3215	D10DMH3215	10	3	D10DMH3215	Place in upstream pipe at D10DMH3215 from Pearl St to collect sample.	9/15/2018		Y	0	0.25	N	L1836906-01	2	N/A	N/A	Compliant		
	S18	Mass Ave	Brookline St to Western Ave	D10DMH3225	D10DMH2650	4	3	D10DMH2650	Place in upstream pipe at D10DMH2650 and downstream pipe at D10DMH3225.												Did not sample due to upstream illicit. Buildings inspected instead.	
	S19	Mass Ave	Western Ave	D10DMH3257	D10DMH3225	5	2	D10DMH3225	Place in upstream pipe at D10DMH3225 and downstream pipe at D10DMH3257.												Did not sample due to upstream illicit. Buildings inspected instead.	
	S20	Mass Ave	Western Ave to Pleasant St	D10DMH3260	D10DMH3257	3	1	D10DMH3257	Place in downstream pipe at D10DMH3257 and upstream at D10DMH3260.												Did not sample due to upstream illicit. Buildings inspected instead.	
	S21	Mass Ave	Pleasant St to Clinton St	D10DMH3605	D10DMH3260	11	4	D10DMH3260	Place on invert at D10DMH3260 to collect sample.	9/15/2018		Y	1.25	0.75	Y	L1836906-01	60	0.075	0.05	Compliant		
	-	Mass Ave				-	-	D10DMH3257	Placed on Manhole outlet invert	1/28/2020	1/30/2020	N	N/A	N/A	N	N/A	N/A	N/A	N/A	MH dry	Post correction inspection	
S22	Clinton St	Mass Ave to Harvard	D10DMH3609	D10DMH3605	7	3	D10DMH3605	Place on invert at D10DMH3605 to collect sample.	9/15/2018		N	N/A	N/A	N						MH Dry		

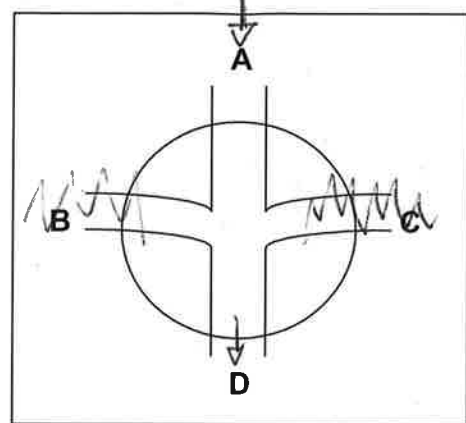
**APPENDIX G**  
**MANHOLE INSPECTION FORMS**

Sidney St Flap Gate/Tide Gate

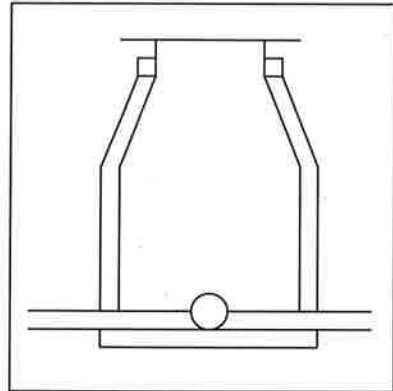
# Manhole Inspection Report

MH# D08DMH2225

ACCESS 103



Standing water, check see pipes



### MANHOLE TYPE

Sanitary Manhole; Combine Manhole; Storm Manhole; Common Manhole

Catchment Area: D10/D12

Inspector: ZSH/GF

Date 11/20/2017

Weather 30's / Sunny

Street Mass Ave @ Sidney St

Cover Size 24" 30" Other     

Manhole Size 4' 5' Other UNK

Drop Y/N

Depth to Wet Ring from Rim or Invert:

N/A

### Area Around Manhole

<b>Paved:</b>	Satisfactory	<u>Cracked</u>	<b>Unpaved:</b>	Satisfactory
	Missing Pavement	Vegetation Growth		Eroded

	Pipe size	Material	From / To MH#	Invert Depth (from Rim)	Flow Depth (from Invert)	Debris Depth (from Invert)	Condition
A.	<u>UNK</u>	<u>UNK</u>	<u>(Mass Ave) UNK</u>	<u>6.10</u>	<u>1.2'</u> <del>to</del> <u>standing water</u>	<u>0"</u>	
B.							
C.							
D.	<u>UNK</u>	<u>UNK</u>		<u>6.10</u> <u>6.05</u>	<u>1.2'</u> <del>to</del> <u>standing water</u>	<u>0"</u>	
E.							

Location of MH ROADWAY, SIDEWALK, ROADSIDE, ALLEY, EASEMENT, Other     

Manhole Material - Brick, Clay Block, Poured Concrete, Manhole Block, Precast Concrete, Other     

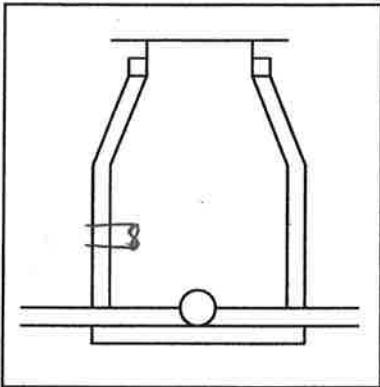
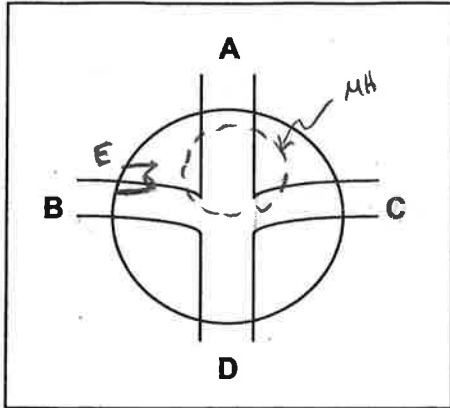
Flow - Steady, Pulsing, Turbulent, Surcharging, Stagnant, Sluggish, No Flow, Other     

Clarity of Flow - Normal Sewer Appearance, Cloudy, Clear, No Flow.

Recommendations - No Action, Rebuild, Line Manhole Wall, Reset Frame, Clean / Remove debris from Invert

# Manhole Inspection Report

MH# ACCESS 229



**MANHOLE TYPE**

Sanitary Manhole; Combine Manhole; Storm Manhole; Common Manhole

Catchment Area: -

Inspector: JHM

Date: 4/12/18

Weather: CLEAR, 50°

Street: ALLSTON ST / GROVE AVE

Cover Size: 24" 30" Other \_\_\_\_\_

Manhole Size: 4' 5' Other ~ 8'

Drop: Y N

Depth to Wet Ring from Rim or Invert: \_\_\_\_\_

**Area Around Manhole**

Paved:	<u>Satisfactory</u>	Cracked	Unpaved:	Satisfactory
	Missing Pavement	Vegetation Growth		Eroded

	Pipe size	Material	From / To MH#	Invert Depth (from Rim)	Flow Depth (from Invert)	Debris Depth (from Invert)	Condition
A.	<u>24"</u>	<u>RCP</u>	_____	<u>10.3'</u>	<u>0</u>	<u>&lt; 1"</u>	_____
B.	<u>12"</u>	<u>PVC</u>	_____	<u>9.3'</u>	<u>&lt; 1"</u>	<u>0</u>	<u>GOOD/ACTIVE</u>
C.	<u>6"</u>	<u>PVC</u>	_____	_____	_____	_____	_____
D.	<u>24"</u>	<u>CIPP</u>	_____	<u>~10.3'</u>	<u>0</u>	<u>0</u>	<u>GOOD, LINER</u>
E.	<u>6"</u>	<u>PVC</u>	_____	<u>5.5'</u>	<u>0</u>	<u>0</u>	<u>GOOD</u>

Location of MH: ROADWAY, SIDEWALK, ROADSIDE, ALLEY, EASEMENT, Other \_\_\_\_\_

Manhole Material -- Brick, Clay Block, Poured Concrete, Manhole Block, Precast Concrete, Other \_\_\_\_\_

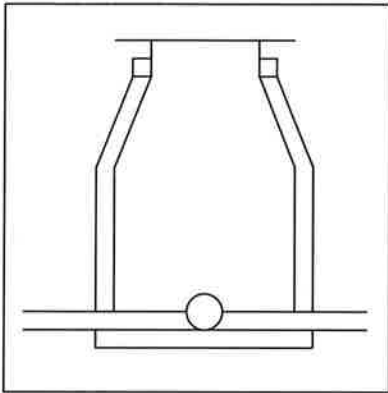
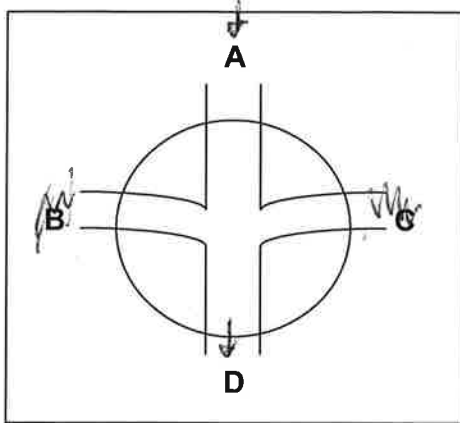
Flow - Steady, Pulsing, Turbulent, Surcharging, Stagnant, Sluggish, No Flow, Other \_\_\_\_\_

Clarity of Flow - Normal Sewer Appearance, Cloudy, Clear, No Flow.

Recommendations - No Action, Rebuild, Line Manhole Wall, Reset Frame, Clean / Remove debris from Invert

# Manhole Inspection Report

MH# D10CMH0125



**MANHOLE TYPE**

Sanitary Manhole; Combine Manhole; Storm Manhole; Common Manhole

Catchment Area: D10/D12-

Inspector: ZSH/GF

Date: 11/20/2017

Weather: 30's / Sunny

Street: River St @ Cottage

Cover Size: 24" 30" Other \_\_\_\_\_

Manhole Size: 4' 5' Other \_\_\_\_\_

Drop: Y/N

Depth to Wet Ring from Rim or Invert:

Sump Rim to Bot. Sump = 7.92

**Area Around Manhole**

<b>Paved:</b>	Satisfactory	<u>Cracked</u>	<b>Unpaved:</b>	Satisfactory
	Missing Pavement	Vegetation Growth		Eroded

	Pipe size	Material	From / To MH#	Invert Depth (from Rim)	Flow Depth (from Invert)	Debris Depth (from Invert)	Condition
A.	UNK	Brick w/ <sup>conc.</sup> top	UNK	UNK	0"	0"	Good
B.							
D	UNK	Brick w/ <sup>conc.</sup> top	UNK	6.4'-5'	0"	0"	Good
D.				<del>UNK</del>	<del>0"</del> 2.4' standing		
E.							

Location of MH: ROADWAY, SIDEWALK, ROADSIDE, ALLEY, EASEMENT, Other \_\_\_\_\_

Manhole Material: Brick, Clay Block, Poured Concrete, Manhole Block, Precast Concrete, Other \_\_\_\_\_

Flow: Steady, Pulsing, Turbulent, Surcharging, Stagnant, Sluggish, No Flow, Other Standing water

Clarity of Flow: Normal Sewer Appearance, Cloudy, Clear, No Flow

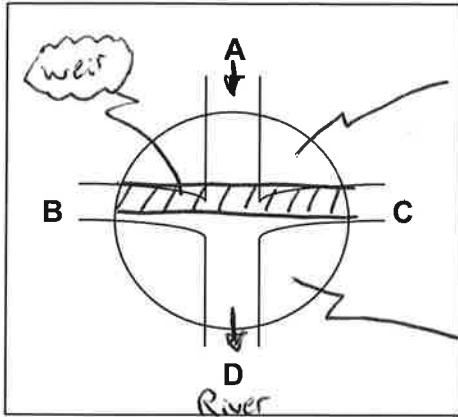
Recommendations: No Action, Rebuild, Line Manhole Wall, Reset Frame, Clean / Remove debris from Invert

(D100MH0005)

# Manhole Inspection Report

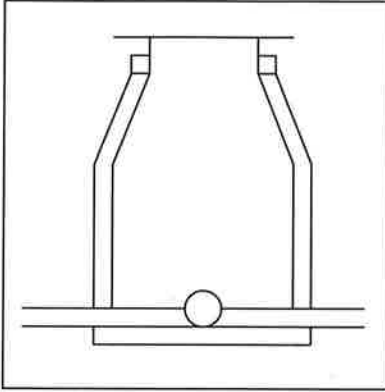
MH# Endicott Outfall Weir

Rim to top of brick weir = 7.38  
↳ 8" w weir  
↳ No stop logs above brick weir



Rim to top of water = 9.0'

Rim to top of water = 8.30'



### MANHOLE TYPE

Sanitary Manhole; Combine Manhole; Storm Manhole; Common Manhole

Catchment Area: 06/012

Inspector: ZSH/GF

Date: 11/20/2017

Weather: 30's / Sunny

Street: Endicott St @

Memorial Drive

Cover Size: 24" 30" Other Hooks to Open

Manhole Size: 4' 5' Other

Drop: Y(N)

Depth to Wet Ring from Rim or Invert:

NA

### Area Around Manhole

Paved:	<u>Satisfactory</u>	Cracked	Unpaved:	Satisfactory
	Missing Pavement	Vegetation Growth		Eroded

	Pipe size	Material	From / To MH#	Invert Depth (from Rim)	Flow Depth (from Invert)	Debris Depth (from Invert)	Condition
A.	<u>UNK</u>	<u>UNK</u>	<u>UNK</u>	<u>11.79</u>	<u>standing water</u>	<u>0"</u>	<u>Good</u>
B.							
C.							
D.	<u>UNK</u>	<u>UNK</u>	<u>River</u>	<u>12.11</u>	<u>standing water</u>	<u>0"</u>	<u>Good</u>
E.							

Location of MH: ROADWAY, SIDEWALK, ROADSIDE, ALLEY, EASEMENT, Other \_\_\_\_\_

Manhole Material - Brick, Clay Block, Poured Concrete, Manhole Block, Precast Concrete, Other  
Walls = Brick Bottom & Top = Conc.?

Flow - Steady, Pulsing, Turbulent, Surcharging, Stagnant, Sluggish, No Flow, Other \_\_\_\_\_

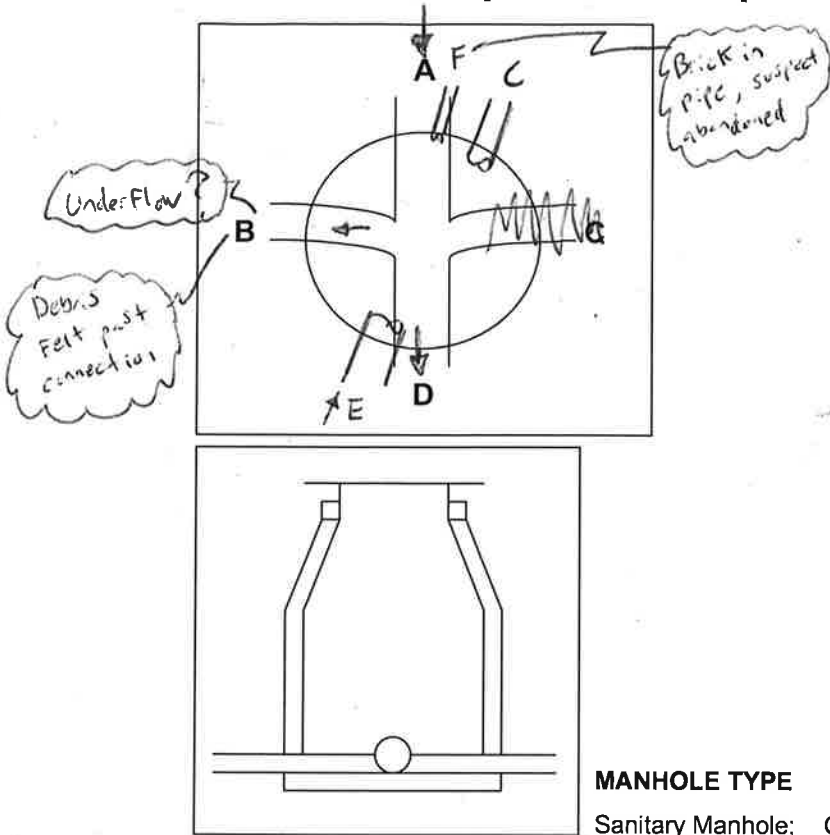
Clarity of Flow - Normal Sewer Appearance, Cloudy, Clear, No Flow.

Recommendations - No Action, Rebuild, Line Manhole Wall, Reset Frame, Clean / Remove debris from Invert



# Manhole Inspection Report

MH# D10DMH0235



Catchment Area: D10/D12 -

Inspector: ZSK / GF

Date 11/20/2017

Weather 30's / Sunny

Street Albany St near Waverly / Erie

Cover Size 24" 30" Other \_\_\_\_\_

Manhole Size 4' 5' Other NA

Drop Y/N N

Depth to Wet Ring from Rim or Invert: NA

### MANHOLE TYPE

Sanitary Manhole; Combine Manhole; Storm Manhole; Common Manhole

### Area Around Manhole

<b>Paved:</b>	<u>Satisfactory</u>	Cracked	<b>Unpaved:</b>	Satisfactory
	Missing Pavement	Vegetation Growth		Eroded

	Pipe size	Material	From / To MH#	Invert Depth (from Rim)	Flow Depth (from Invert)	Debris Depth (from Invert)	Condition
F.	6" Ø	VCP?	UNK	4.80	0"	Brick	Heavy Debris
A.	UNK	PVC?	UNK	7.55 to crown	0"	Heavy	Heavy Debris
B.	≈ 30" W x 2.66' H	Brick	MWRA?	6.20 to crown 8.86	0"	2-4"	
C.	12" Ø	DI	MIT MH	7.40'	0"	0"	
D.	UNK	PVC?	UNK	7.55 to crown	0"	Heavy	Heavy debris
E.	15" Ø	RCP	CB?	5.19'	0"	0"	

Location of MH - ROADWAY, SIDEWALK, ROADSIDE, ALLEY, EASEMENT, Other \_\_\_\_\_

Manhole Material - Brick, Clay Block, Poured Concrete, Manhole Block, Precast Concrete, Other \_\_\_\_\_

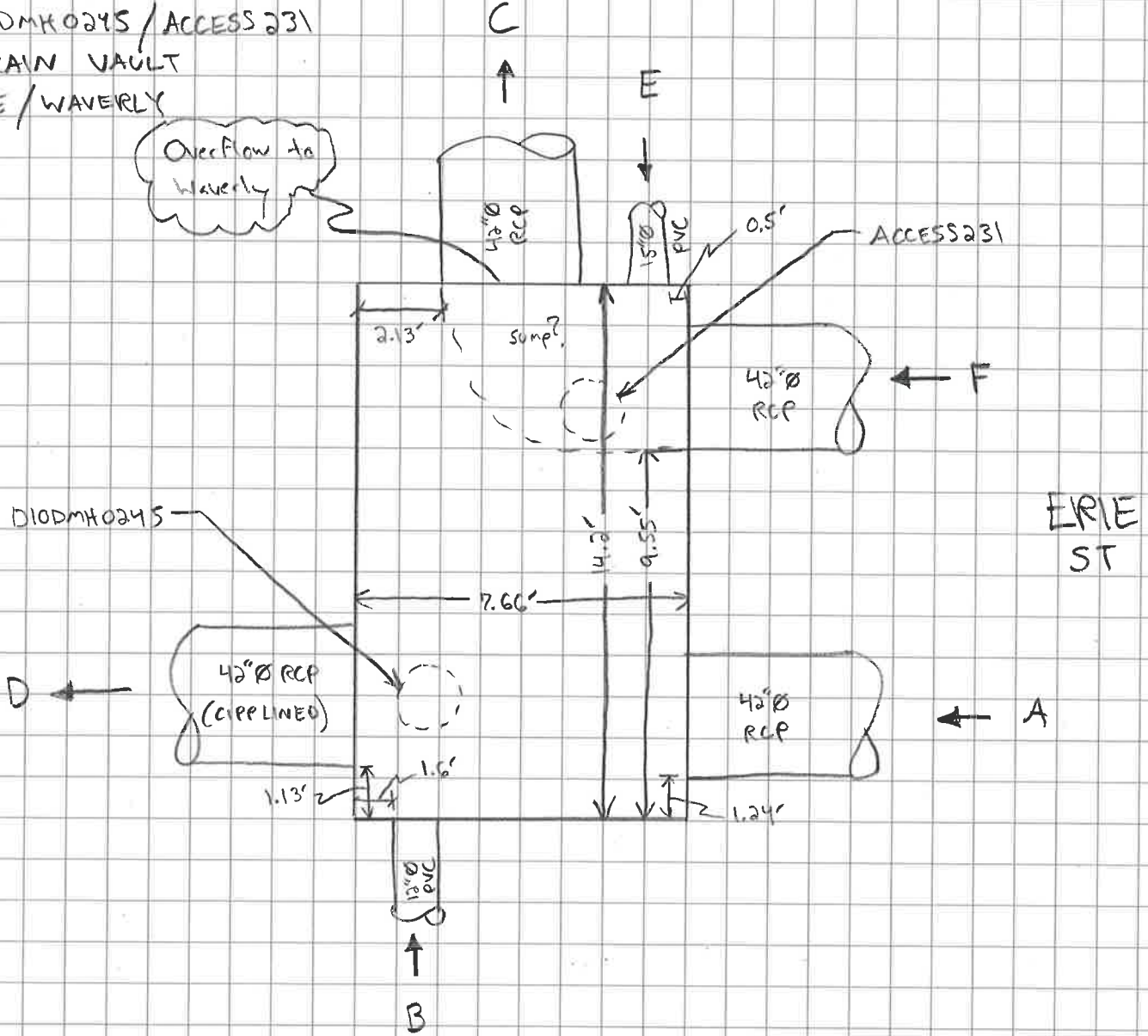
Flow - Steady, Pulsing, Turbulent, Surcharging, Stagnant, Sluggish, No Flow, Other \_\_\_\_\_

Clarity of Flow - Normal Sewer Appearance, Cloudy, Clear, No Flow

Recommendations - No Action, Rebuild, Line Manhole Wall, Reset Frame, Clean / Remove debris from Invert

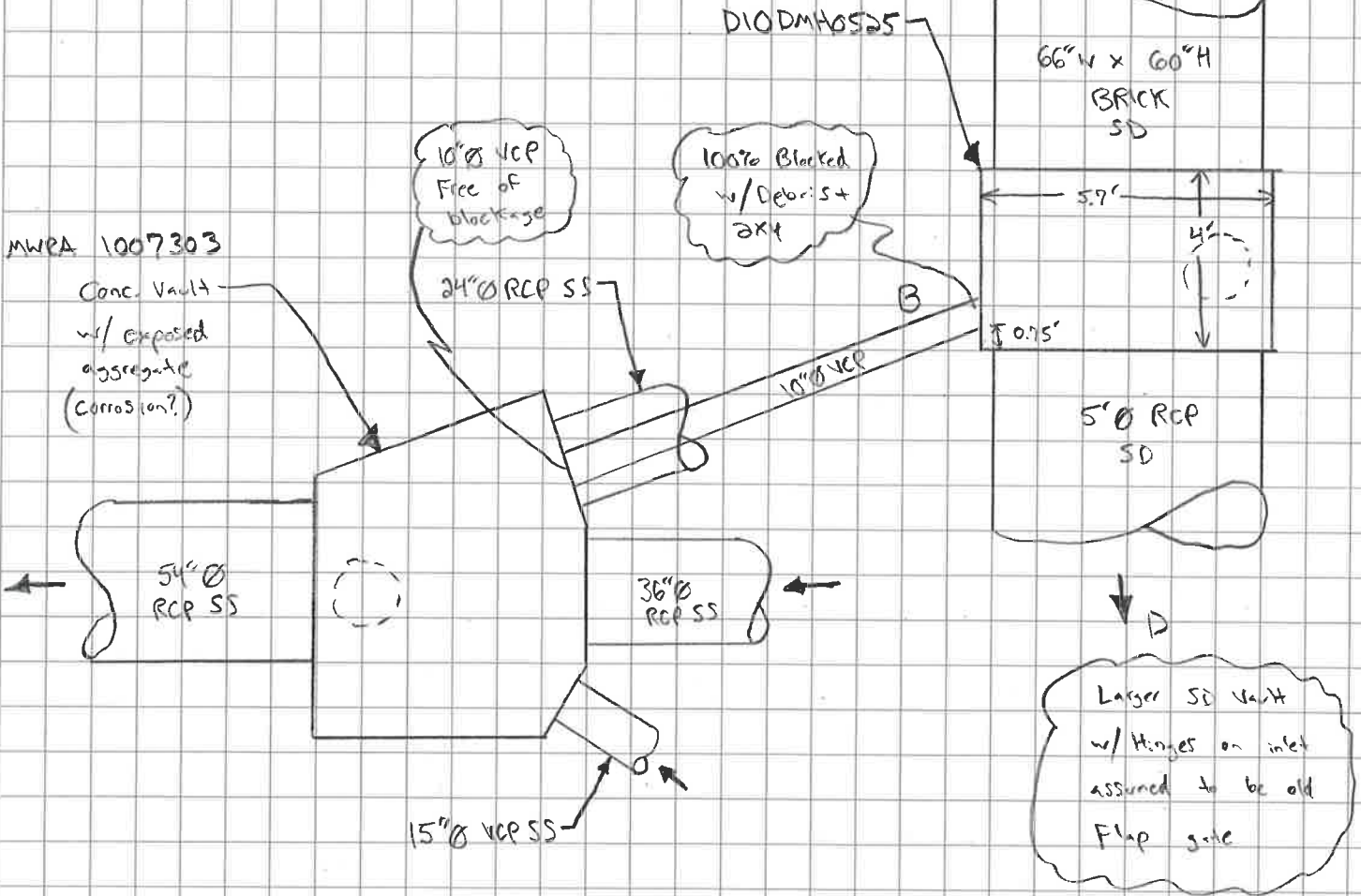
WAVERLY ST

DIODMH0245 / ACCESS 231  
DRAIN VAULT  
ERIE / WAVERLY



		Inv. Depth From RIM
A	42" RCP	10.75
B	12" PVC	4.75
C	42" RCP	8.11
D	42" RCP (CIPP Lined)	10.90
E	15" PVC	9.60
F	42" RCP	10.94

D10DMH0525 & MWRA 1007303  
PACIFIC / ALBANY



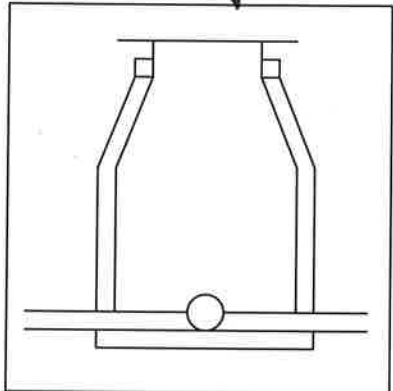
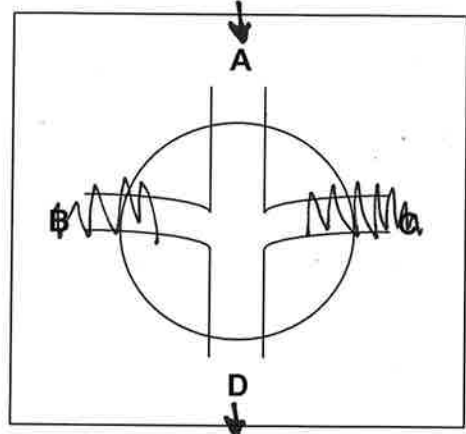
**DRAW VAULT**

		Inv. Depth From RIM
A	66" W x 60" H BRICK	10.36
B	10" VCP	9.84
D	60" RCP	10.36

Note: Rim to top of water = 8.94 (≈ Approx. @ Crown of 10" VCP)

# Manhole Inspection Report

MH# D100MH0530



Rim to top of water = 9.05'  
Rim to top of debris = 9.90'

**MANHOLE TYPE**

Sanitary Manhole; Combine Manhole; Storm Manhole; Common Manhole

Catchment Area: D10 -

Inspector: ZSH / JM

Date 4/3/2018

Weather 40's / Sunny

Street Pacific St / Purinton

---

Cover Size 24' 30" Other \_\_\_\_\_

Manhole Size 4' 5' Other \_\_\_\_\_

Drop Y / N

Depth to Wet Ring from Rim or Invert: NA

**Area Around Manhole**

<b>Paved:</b> <u>Satisfactory</u>	Cracked	<b>Unpaved:</b> Satisfactory
Missing Pavement	Vegetation Growth	Eroded

	Pipe size	Material	From / To MH#	Invert Depth (from Rim)	Flow Depth (from Invert)	Debris Depth (from Invert)	Condition
A.	<u>5'6" W x 5' H</u>	<u>BRICK</u>	<u>-</u>	<u>≈ 10.1</u>	<u>≈ 1'</u>	<u>0.2'</u>	<u>Good</u>
B.	_____	_____	_____	_____	_____	_____	_____
C.	_____	_____	_____	_____	_____	_____	_____
D.	<u>5'6" W x 5' H</u>	<u>BRICK</u>	<u>-</u>	<u>≈ 10.1</u>	<u>≈ 1'</u>	<u>0.2'</u>	<u>Good</u>
E.	_____	_____	_____	_____	_____	_____	_____

Location of MH - ROADWAY, SIDEWALK, ROADSIDE, ALLEY, EASEMENT, Other \_\_\_\_\_

Manhole Material - Brick, Clay Block, Poured Concrete, Manhole Block, Precast Concrete, Other \_\_\_\_\_

Flow - Steady, Pulsing, Turbulent, Surcharging, Stagnant, Sluggish, No Flow, Other \_\_\_\_\_

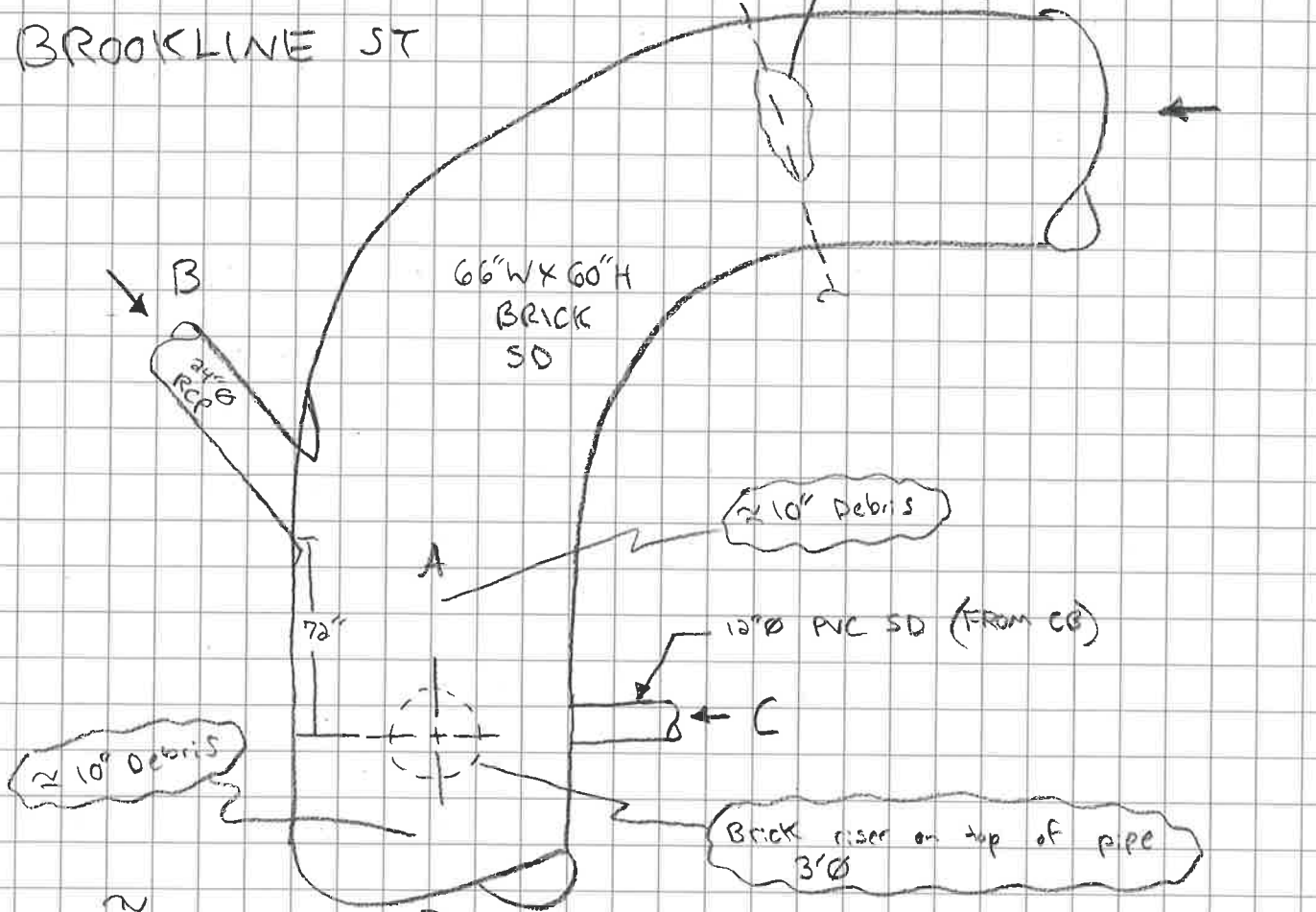
Clarity of Flow - Normal Sewer Appearance, Cloudy, Clear, No Flow.

Recommendations - No Action, Rebuild, Line Manhole Wall, Reset Frame, Clean / Remove debris from Invert

D10DMH0550  
PACIFIC / BROOKLINE

BROOKLINE ST

Missing bricks  
Suspect utility (CI) crossing  
through crown

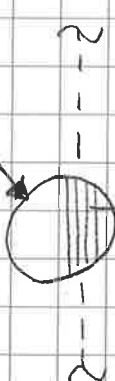


≈ 10" Debris

≈ 10" Debris

Brick riser on top of pipe  
3'Ø

AT&T  
MH



2.3' Rim to top of conduits

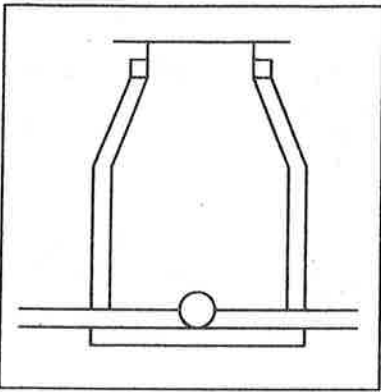
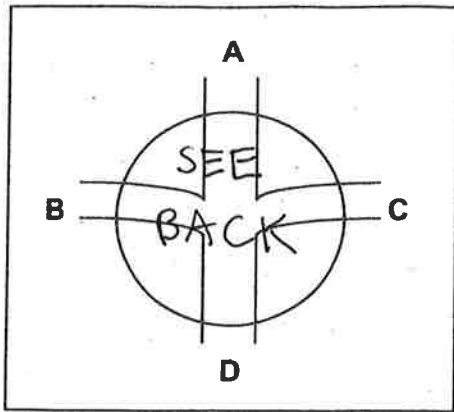
PACIFIC  
ST

		Inu. Depth From RIM
A	66"wx60"H Brick	UNK
B	24"Ø RCP	7.48
C	12"Ø PVC	5.32
D	66"wx60"H Brick	UNK

Rim to top of Water = 7.9'

# Manhole Inspection Report

MH# D10DMH3223



**MANHOLE TYPE**

Sanitary Manhole; Combine Manhole; Storm Manhole; Common Manhole

Catchment Area: <u>D10</u>
Inspector: <u>ZSH / JM</u>
Date: <u>7/18/2018</u>
Weather: <u>80's / Sunny</u>
Street: <u>Mass Ave near Pearl St</u>
Cover Size: <u>24"</u> 30" Other _____
Manhole Size: 4' 5' <u>Other ≈ 6'</u>
Drop: <u>Y/N</u>
Depth to Wet Ring from Rim or Invert: <u>NA</u>

**Area Around Manhole**

<b>Paved:</b>	Satisfactory	Cracked	<b>Unpaved:</b>	Satisfactory
	Missing Pavement	Vegetation Growth		Eroded

	Pipe size	Material	From / To MH#	Invert Depth (from Rim)	Flow Depth (from Invert)	Debris Depth (from Invert)	Condition
A.	_____	_____	_____	_____	_____	_____	_____
B.	_____	<u>SEE BACK</u>			_____	_____	_____
C.	_____	_____	_____	_____	_____	_____	_____
D.	_____	_____	_____	_____	_____	_____	_____
E.	_____	_____	_____	_____	_____	_____	_____

**Location of MH** - ROADWAY, SIDEWALK, ROADSIDE, ALLEY, EASEMENT, Other \_\_\_\_\_

**Manhole Material** - Brick, Clay Block, Poured Concrete, Manhole Block, Precast Concrete, Other \_\_\_\_\_

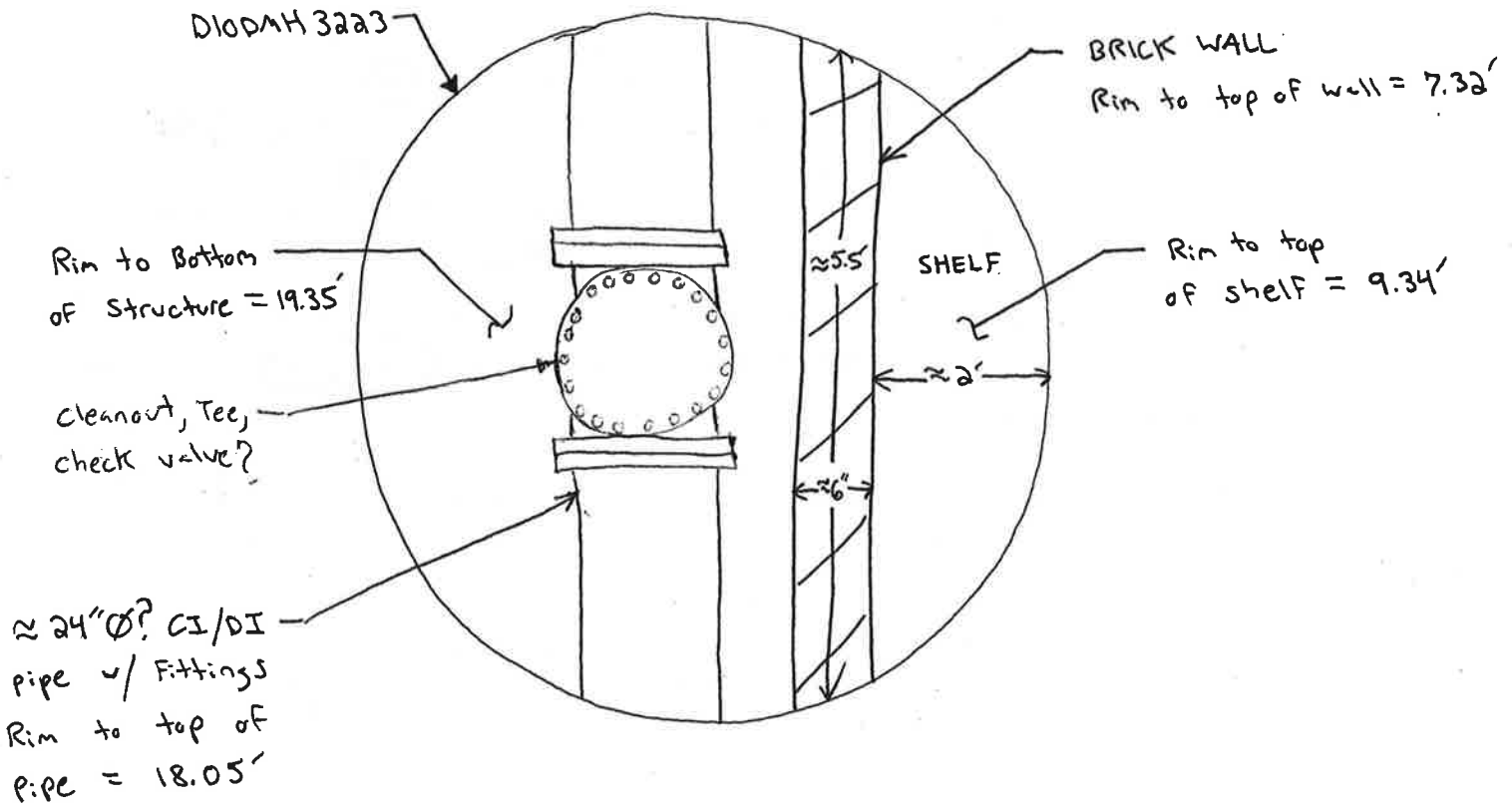
**Flow** - Steady, Pulsing, Turbulent, Surcharging, Stagnant, Sluggish, No Flow, Other \_\_\_\_\_

**Clarity of Flow** - Normal Sewer Appearance, Cloudy, Clear, No Flow.

**Recommendations** - No Action, Rebuild, Line Manhole Wall, Reset Frame, Clean / Remove debris from Invert

PEARL STREET

MASS AVE

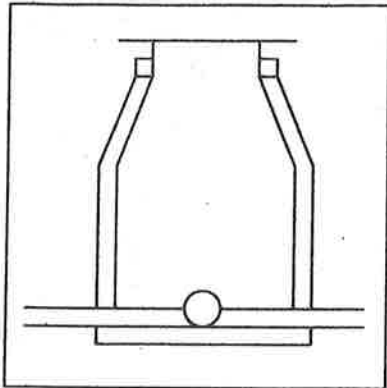
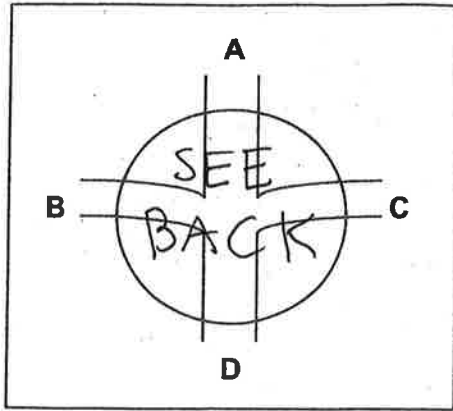


Notes:

- ↳ Fractures in MH, black tar appears to be filled into cracks for rehab
- ↳ Groundwater infiltration visible through fracture
- ↳ Pipe passes through structure
  - ↳ Pipe contains fittings, pressure pipe?
  - ↳ Appears cleanout of Tee in center
- ↳ Plate could exist at bottom of structure and bolted down
- ↳ Removed extensive amount of debris; shovel, rebar, timber, etc.

# Manhole Inspection Report

MH# D10DMH3225



**MANHOLE TYPE**

Sanitary Manhole; Combine Manhole; Storm Manhole; Common Manhole

Catchment Area: D10 -

Inspector: ZSH

Date: 7/19/2018

Weather: 80's / Sunny

Street: Mass Ave @

Western Ave

Cover Size: 24" 30" Other \_\_\_\_\_

Manhole Size: 4' 5' Other \_\_\_\_\_

Drop: Y/N ~ 6' W x 18' L

Depth to Wet Ring from Rim or Invert:  
NA

**Area Around Manhole**

<b>Paved:</b>	Satisfactory	Cracked	<b>Unpaved:</b>	<u>Satisfactory</u>
	Missing Pavement	Vegetation Growth	<u>(Brick)</u>	Eroded

Pipe size	Material	From / To MH#	Invert Depth (from Rim)	Flow Depth (from Invert)	Debris Depth (from Invert)	Condition
A.						
B.	<u>SEE BACK</u>					
C.						
D.						
E.						

Location of MH - ROADWAY, SIDEWALK, ROADSIDE, ALLEY, EASEMENT, Other \_\_\_\_\_

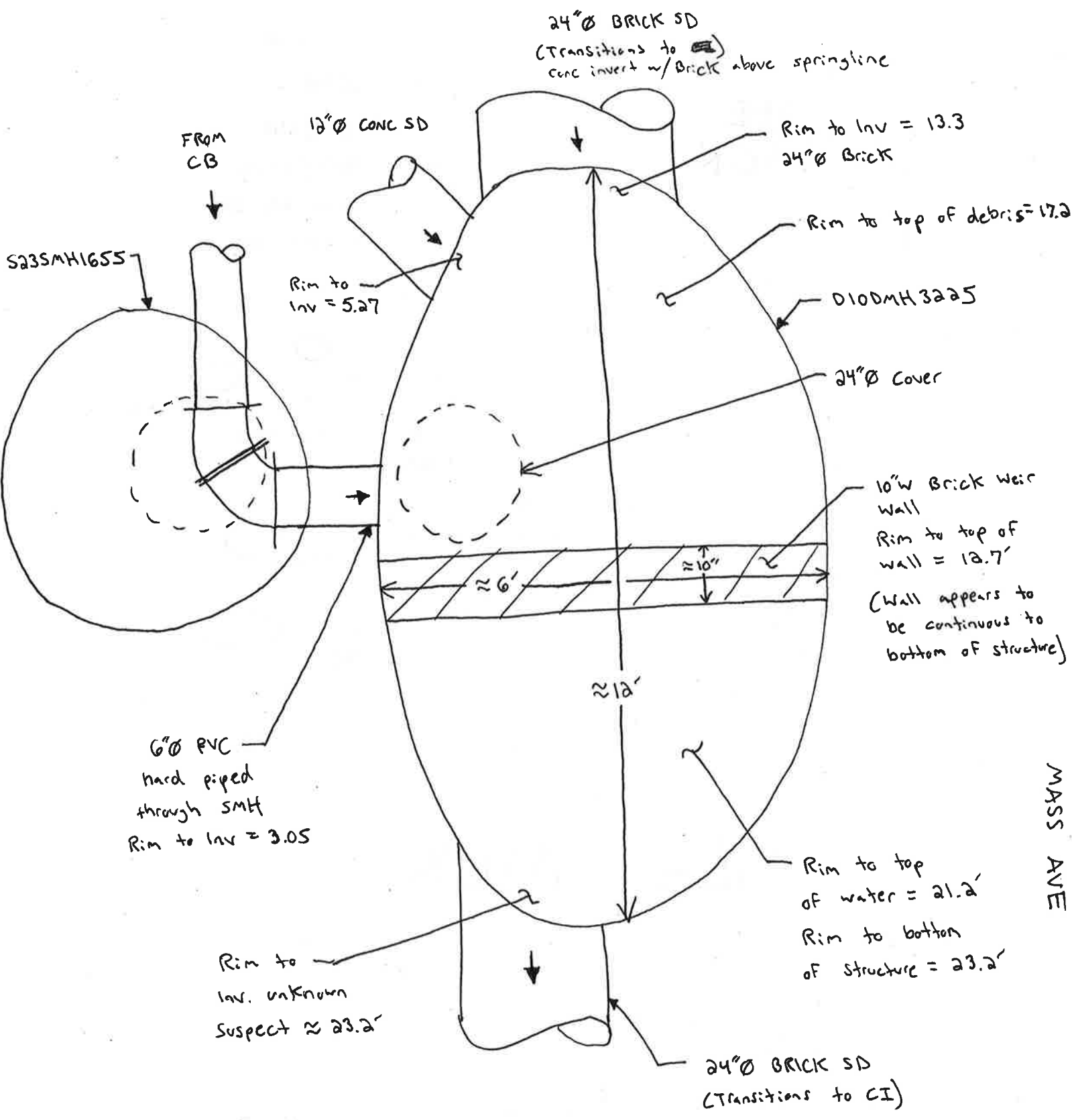
Manhole Material - Brick, Clay Block, Poured Concrete, Manhole Block, Precast Concrete, Other \_\_\_\_\_

Flow - Steady, Pulsing, Turbulent, Surcharging, Stagnant, Sluggish, No Flow, Other \_\_\_\_\_

Clarity of Flow - Normal Sewer Appearance, Cloudy, Clear, No Flow.

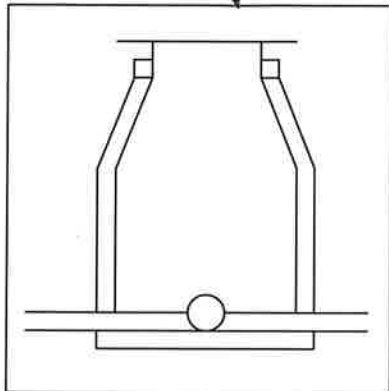
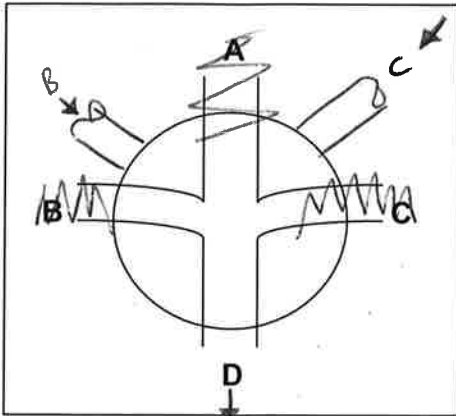
Recommendations - No Action, Rebuild, Line Manhole Wall, Reset Frame, Clean / Remove debris from Invert





# Manhole Inspection Report

MH# D12DMH0605



**MANHOLE TYPE**

Sanitary Manhole; Combine Manhole; Storm Manhole; Common Manhole

Catchment Area: D12

Inspector: ZSH/JM

Date 4/3/2008

Weather 40's/Cloudy

Street Waverly St / Talbot St

Cover Size 24" 30" Other \_\_\_\_\_

Manhole Size 4' 5' Other \_\_\_\_\_

Drop Y N

Depth to Wet Ring from Rim or Invert:

NK

**Area Around Manhole**

Paved: Satisfactory

Cracked

Unpaved:

Satisfactory

Missing Pavement

Vegetation Growth

Eroded

	Pipe size	Material	From / To MH#	Invert Depth (from Rim)	Flow Depth (from Invert)	Debris Depth (from Invert)	Condition
<u>A.</u>	_____	_____	_____	_____	_____	_____	_____
<u>B.</u>	<u>12" Ø</u>	<u>DI</u>	<u>S245MH0600</u>	<u>8.08</u>	<u>0"</u>	<u>0"</u>	<u>Good</u>
<u>C.</u>	<u>48" Ø?</u>	<u>RCP</u>	_____	<u>8.08</u>	<u>0"</u>	<u>0"</u>	<u>Good</u>
<u>D.</u>	<u>54" Ø</u>	<u>RCP</u>	<u>Vault</u>	<u>≈ 11.09</u> <u>8.08</u>	<u>0"</u>	<u>0"</u>	<u>Good</u>
<u>E.</u>	_____	_____	_____	_____	_____	_____	_____

Location of MH - ROADWAY, SIDEWALK, ROADSIDE, ALLEY, EASEMENT, Other \_\_\_\_\_

Manhole Material - Brick, Clay Block, Poured Concrete, Manhole Block, Precast Concrete, Other \_\_\_\_\_

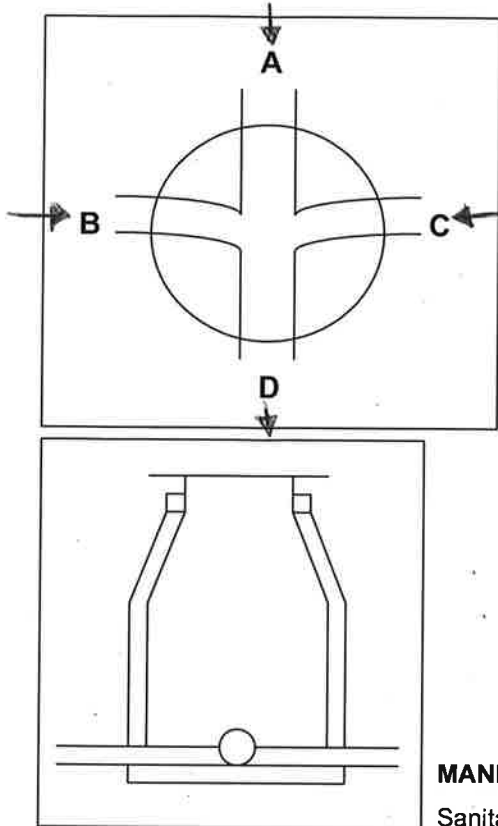
Flow - Steady, Pulsing, Turbulent, Surcharging, Stagnant, Sluggish, No Flow, Other \_\_\_\_\_

Clarity of Flow - Normal Sewer Appearance, Cloudy, Clear, No Flow.

Recommendations - No Action, Rebuild, Line Manhole Wall, Reset Frame, Clean / Remove debris from Invert

# Manhole Inspection Report

MH# D12 DMH0805



Catchment Area: D12 -

Inspector: ZSH / JM

Date: 4/3/2018

Weather: 40's / cloudy

Street: Waverly St / Talbot St

Cover Size: 24" 30" Other \_\_\_\_\_

Manhole Size: 4' 5' Other \_\_\_\_\_

Drop: Y/N

Depth to Wet Ring from Rim or Invert: NA

**MANHOLE TYPE**

Sanitary Manhole; Combine Manhole; Storm Manhole; Common Manhole

**Area Around Manhole**

Paved: Satisfactory Cracked Unpaved: Satisfactory

Missing Pavement Vegetation Growth Eroded

	Pipe size	Material	From / To MH#	Invert Depth (from Rim)	Flow Depth (from Invert)	Debris Depth (from Invert)	Condition
A.	<u>18" Ø</u>	<u>RCP</u>	<u>-</u>	<u>10.5</u>	<u>0"</u>	<u>0"</u>	<u>Good</u>
B.	<u>18" Ø</u>	<u>RCP/CIPP Lined</u>	<u>Bldg?</u>	<u>10.66</u>	<u>0"</u>	<u>0"</u>	<u>Good</u>
C.	<u>16" Ø</u>	<u>DI</u>	<u>CB</u>	<u>3.96</u>	<u>&lt;1"</u>	<u>0"</u>	<u>Good</u>
D.	<u>30" Ø</u>	<u>RCP</u>	<u>-</u>	<u>10.66</u>	<u>&lt;1"</u>	<u>0"</u>	<u>Good</u>

Location of MH - ROADWAY, SIDEWALK, ROADSIDE, ALLEY, EASEMENT, Other \_\_\_\_\_

Manhole Material - Brick, Clay Block, Poured Concrete, Manhole Block, Precast Concrete, Other \_\_\_\_\_

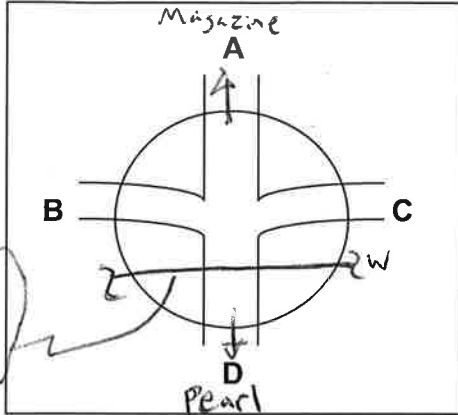
Flow - Steady, Pulsing, Turbulent, Surcharging, Stagnant, Sluggish, No Flow, Other \_\_\_\_\_  
From CB, Snow melt

Clarity of Flow - Normal Sewer Appearance, Cloudy, Clear, No Flow.

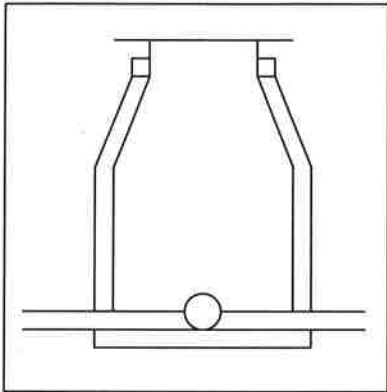
Recommendations - No Action, Rebuild, Line Manhole Wall, Reset Frame, Clean / Remove debris from Invert

# Manhole Inspection Report

MH# D12DMH7405



3/4 Water Service



### MANHOLE TYPE

Sanitary Manhole; Combine Manhole; Storm Manhole; Common Manhole

Catchment Area: D10/D12-

Inspector: ZSH/GF

Date: 11/30/2017

Weather: 30's / Sunny

Street: Hamilton St (#190)  
(Between Magazine & Pearl)

Cover Size: 24" 30" Other \_\_\_\_\_

Manhole Size: 4' 5' Other

Drop: Y/N

Depth to Wet Ring from Rim or Invert:

NA

### Area Around Manhole

<b>Paved:</b>	Satisfactory	<u>Cracked</u>	<b>Unpaved:</b>	Satisfactory
	Missing Pavement	Vegetation Growth		Eroded

	Pipe size	Material	From / To MH#	Invert Depth (from Rim)	Flow Depth (from Invert)	Debris Depth (from Invert)	Condition
A.	<u>UNK</u>	<u>UNK</u>	<u>UNK</u>	<u>6.90</u>	<u>0"</u>	<u>~2"</u>	<u>Good</u>
B.							
C.							
D.	<u>UNK</u>	<u>UNK</u>	<u>UNK</u>	<u>6.85</u>	<u>0"</u>	<u>~2"</u>	<u>Good</u>
E.							

Location of MH - ROADWAY, SIDEWALK, ROADSIDE, ALLEY, EASEMENT, Other \_\_\_\_\_

Manhole Material - Brick, Clay Block, Poured Concrete, Manhole Block, Precast Concrete, Other \_\_\_\_\_

Flow - Steady, Pulsing, Turbulent, Surcharging, Stagnant, Sluggish, No Flow, Other \_\_\_\_\_

Clarity of Flow - Normal Sewer Appearance, Cloudy, Clear, No Flow.

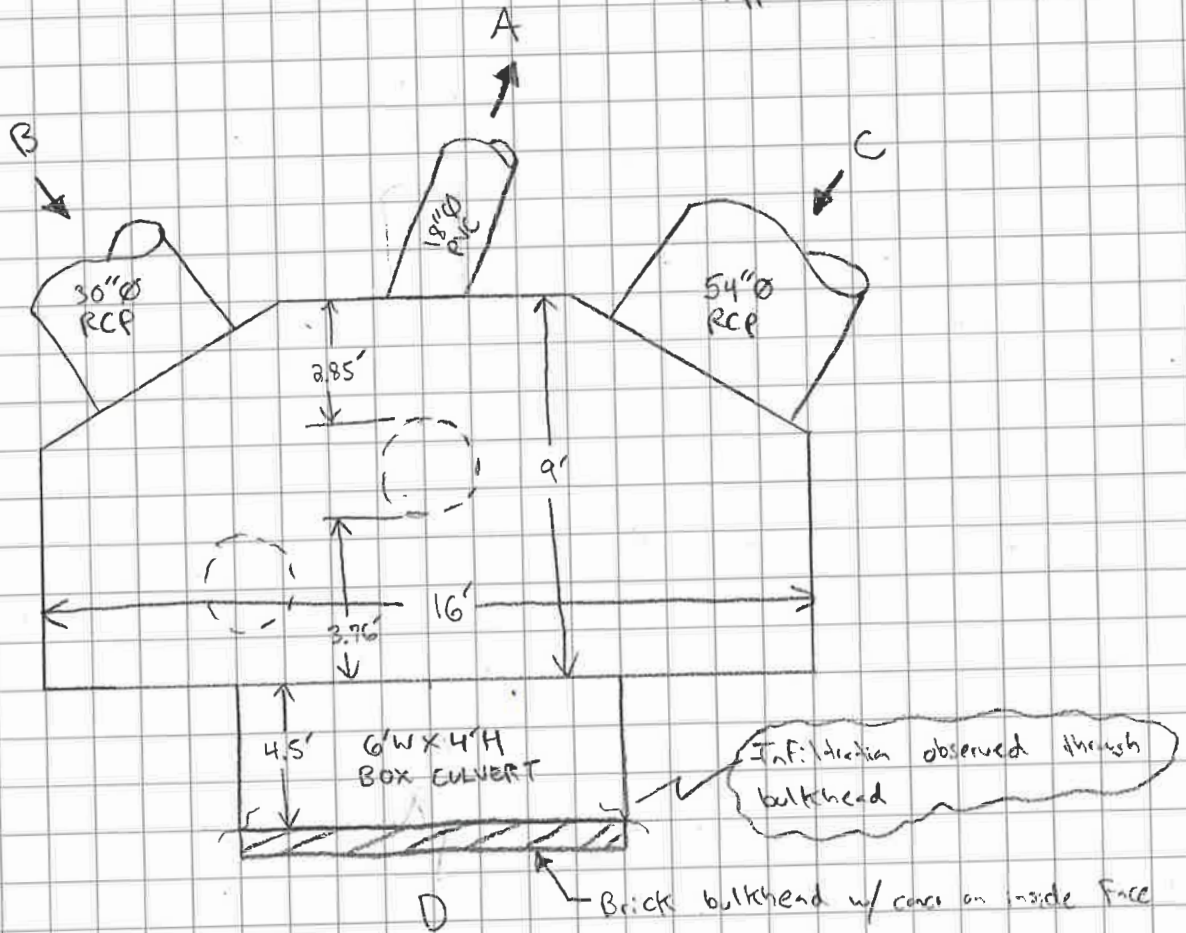
Recommendations - No Action, Rebuild, Line Manhole Wall, Reset Frame, Clean / Remove debris from Invert

↳ Water service through MH

6.95

D12UGS0002  
 WAVERLY / TALBOT

- Notes:
- ↳ Water level  $\approx$  @ Inv. 18"Ø PVC
  - ↳ Sump  $\approx$  1' below water level
  - ↳ Precast structure w/ Flat top slab
  - ↳ Approx. 6" debris in structure

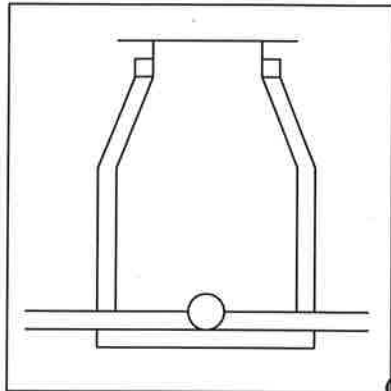
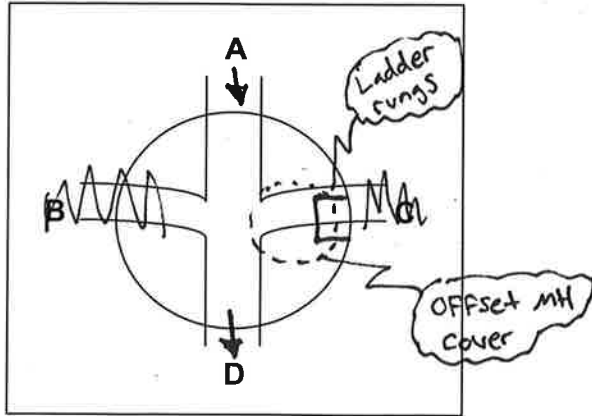


		Rim to Inv.	
A	18"Ø PVC	11.85	< 1" Flow
B	30"Ø RCP	11.58	< 1" Flow
C	54"Ø RCP	11.61	< 1" Flow
D	4'H X 6'W BOX CULVERT	11.66	

Rim to top of water = 11.72

# Manhole Inspection Report

MH# S23SMH0015



**MANHOLE TYPE**

Sanitary Manhole

Combine Manhole; Storm Manhole; Common Manhole

Catchment Area: S23 -

Inspector: ZSH / JM

Date 4/3/2018

Weather 40's / Sunny

Street Pacific St / Purrington

Cover Size 24" 30" Other

Manhole Size 4' 5' Other

Drop Y/N

Depth to Wet Ring from Rim or Invert:

NA

**Area Around Manhole**

Paved: Satisfactory

Missing Pavement

Cracked

Vegetation Growth

Unpaved:

Satisfactory

Eroded

	Pipe size	Material	From / To MH#	Invert Depth (from Rim)	Flow Depth (from Invert)	Debris Depth (from Invert)	Condition
A.	21"	PVC	-	13.95	≈ 6"	0"	Good
B.							
C.							
D.	21"	PVC	-	13.95	≈ 6"	0"	Good
E.							

Location of MH - ROADWAY, SIDEWALK, ROADSIDE, ALLEY, EASEMENT, Other

Manhole Material - Brick, Clay Block, Poured Concrete, Manhole Block, Precast Concrete, Other

Flow - Steady, Pulsing, Turbulent, Surcharging, Stagnant, Sluggish, No Flow, Other

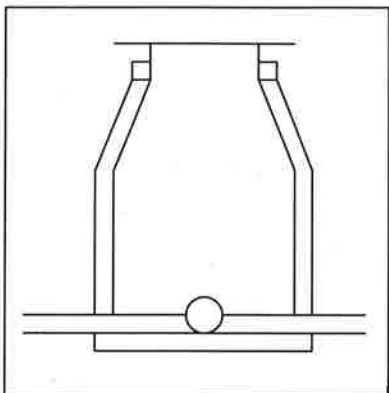
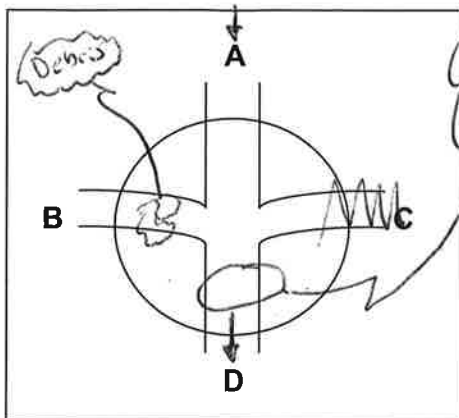
Clarity of Flow - Normal Sewer Appearance, Cloudy, Clear, No Flow.

Recommendations - No Action, Rebuild, Line Manhole Wall, Reset Frame, Clean / Remove debris from Invert

Eccentric manhole

# Manhole Inspection Report

MH# S235MH 2215



**MANHOLE TYPE**

Sanitary Manhole; Combine Manhole; Storm Manhole; Common Manhole

Catchment Area: -

Inspector: ZSH/GF

Date: 11/20/2017

Weather: 30's / Sunny

Street: River St / William St

Cover Size: 24" 30" Other \_\_\_\_\_

Manhole Size: 4' 5' Other \_\_\_\_\_

Drop: Y/N

Depth to Wet Ring from Rim or Invert:

NA

**Area Around Manhole**

Paved: Satisfactory Cracked Unpaved: Satisfactory  
 Missing Pavement Vegetation Growth Eroded

	Pipe size	Material	From / To MH#	Invert Depth (from Rim)	Flow Depth (from Invert)	Debris Depth (from Invert)	Condition
A.	<u>8" Ø</u>	<u>VCP</u>	<u>UNK</u>	<u>10.24'</u>	<u>1"</u>	<u>0"</u>	
B.	<u>8" Ø?</u>	<u>VCP?</u>	<u>William St</u>	<u>10.2'</u>	<u>0"</u>	<u>Debris blocking pipe cone?</u>	
C.							
D.	<u>8" Ø?</u>	<u>VCP?</u>	<u>UNK</u>	<u>≈ 10.3'</u>	<u>1"</u>	<u>MH cover</u>	
E.							

Location of MH: ROADWAY, SIDEWALK, ROADSIDE, ALLEY, EASEMENT, Other \_\_\_\_\_

Manhole Material: Brick, Clay Block, Poured Concrete, Manhole Block, Precast Concrete, Other \_\_\_\_\_

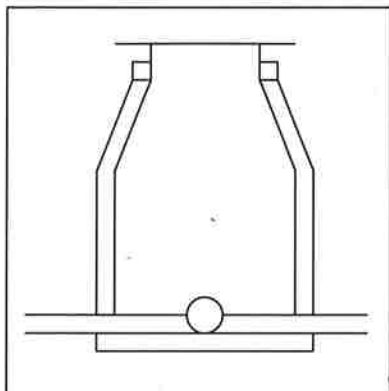
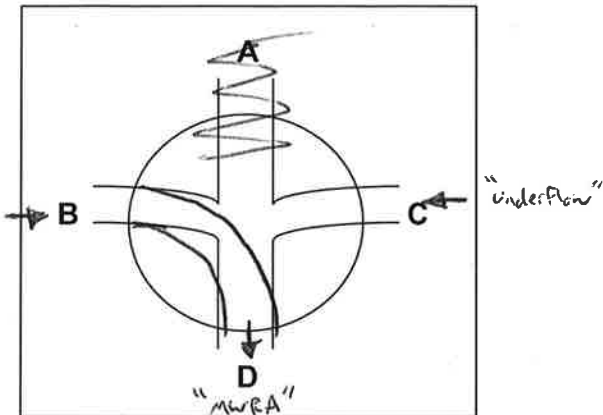
Flow: Steady, Pulsing, Turbulent, Surcharging, Stagnant, Sluggish, No Flow, Other \_\_\_\_\_

Clarity of Flow: Normal Sewer Appearance, Cloudy, Clear, No Flow.

Recommendations: No Action, Rebuild, Line Manhole Wall, Reset Frame, Clean / Remove debris from Invert

# Manhole Inspection Report

MH# 5MH1



**MANHOLE TYPE**

Sanitary Manhole; Combine Manhole; Storm Manhole; Common Manhole

Catchment Area: -

Inspector: ZSH/GF

Date 3/20/2017

Weather 30'S / Sunny

Street Waverly St / Talbot St

Cover Size 24 30" Other \_\_\_\_\_

Manhole Size 4' 5' Other \_\_\_\_\_

Drop Y/N

Depth to Wet Ring from Rim or Invert:

NA

**Area Around Manhole**

Paved: Satisfactory Cracked Unpaved: Satisfactory  
 Missing Pavement Vegetation Growth Eroded

	Pipe size	Material	From / To MH#	Invert Depth (from Rim)	Flow Depth (from Invert)	Debris Depth (from Invert)	Condition
<del>A.</del>							
B.	12"Ø	PVC	5MH2	14.32'	<1"	0"	Good
C.	18"Ø	PVC	Drain Vault	11.77'	<1"	0"	Good
D.	12"Ø	PVC	MWRA	15.40'	<1"	0"	Good
<del>E.</del>							

Location of MH - ROADWAY SIDEWALK, ROADSIDE, ALLEY, EASEMENT, Other \_\_\_\_\_

Manhole Material - Brick, Clay Block, Poured Concrete, Manhole Block, Precast Concrete, Other \_\_\_\_\_

Flow Steady Pulsing, Turbulent, Surcharging, Stagnant, Sluggish, No Flow, Other \_\_\_\_\_

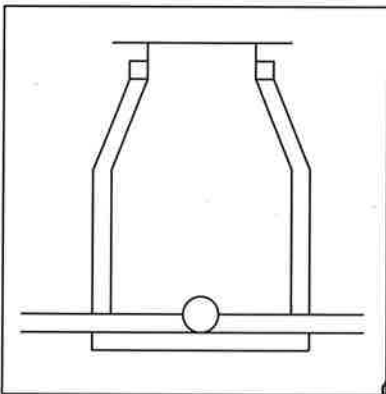
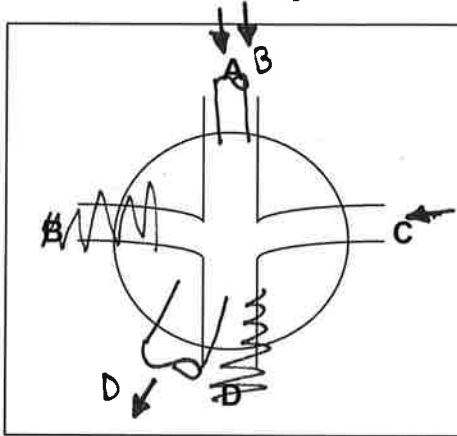
Clarity of Flow - Normal Sewer Appearance, Cloudy, Clear, No Flow.

Recommendations - No Action Rebuild, Line Manhole Wall, Reset Frame, Clean / Remove debris from Invert



# Manhole Inspection Report

MH# S24CMH1205



**MANHOLE TYPE**

Sanitary Manhole; Combine Manhole; Storm Manhole; Common Manhole

Catchment Area: S24 -

Inspector: ZSH/JM

Date 4/3/2018

Weather 40's / Cloudy

Street Waverly St / Talbot St

Cover Size 24" 30" Other \_\_\_\_\_

Manhole Size 4' 5' Other \_\_\_\_\_

Drop Y/N

Depth to Wet Ring from Rim or Invert:

NA

**Area Around Manhole**

<b>Paved:</b>	Satisfactory	Cracked	<b>Unpaved:</b>	Satisfactory
	Missing Pavement	Vegetation Growth		Eroded

	Pipe size	Material	From / To MH#	Invert Depth (from Rim)	Flow Depth (from Invert)	Debris Depth (from Invert)	Condition
A.	<u>12" Ø</u>	<u>PVC</u>	<u>S24CMH1210</u>	<u>14.32</u>	<u>1"</u>	<u>0"</u>	<u>Good</u>
B.	<u>12" Ø</u>	<u>PVC</u>	<u>Abnd? Drop?</u>	<u>10.54</u>	<u>0"</u>	<u>0"</u>	<u>Good</u>
C.	<u>4" Ø</u>	<u>UNK</u>	<u>Bldg?</u>	<u>13.44</u>	<u>&lt;1"</u>	<u>0"</u>	<u>Good</u>
D.	<u>12" Ø</u>	<u>PVC</u>	<u>S24CMH1200</u>	<u>14.40</u>	<u>1"</u>	<u>0"</u>	<u>Good</u>
E.							

Location of MH ROADWAY SIDEWALK, ROADSIDE, ALLEY, EASEMENT, Other \_\_\_\_\_

Manhole Material - Brick, Clay Block, Poured Concrete, Manhole Block, Precast Concrete, Other \_\_\_\_\_

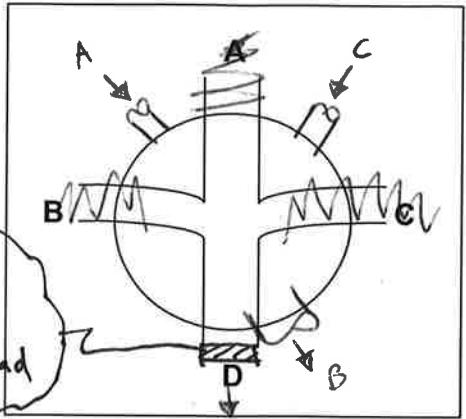
Flow - Steady, Pulsing, Turbulent, Surcharging, Stagnant, Sluggish, No Flow, Other \_\_\_\_\_

Clarity of Flow - Normal Sewer Appearance Cloudy, Clear, No Flow.

Recommendations - No Action, Rebuild, Line Manhole Wall, Reset Frame, Clean / Remove debris from Invert

# Manhole Inspection Report

MH# 5245MH0100



NWMCC  
CCTV Inspected  
"D" line and  
observed bulkhead

Catchment Area: 524 -

Inspector: ZSH/JM

Date: 4/3/2018

Weather: 40's / Cloudy

Street: Waverly St / Talbot St

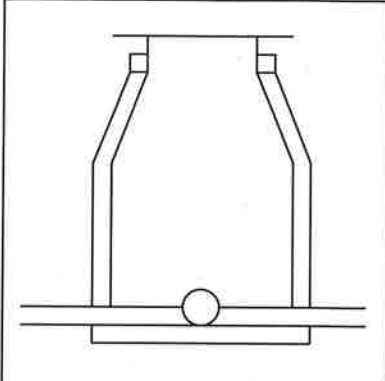
---

Cover Size: 24" 30" Other \_\_\_\_\_

Manhole Size: 4' 5' Other \_\_\_\_\_

Drop: Y/N

Depth to Wet Ring from Rim or Invert: NA



No channel  
No eders  
suspect drain  
↳ sample to confirm

**MANHOLE TYPE**

- ~~Sanitary Manhole~~; Combine Manhole; Storm Manhole?; Common Manhole

**Area Around Manhole**

<b>Paved:</b> Conc.	<u>Satisfactory</u>	Cracked	<b>Unpaved:</b>	Satisfactory
	Missing Pavement	Vegetation Growth		Eroded

	Pipe size	Material	From / To MH#	Invert Depth (from Rim)	Flow Depth (from Invert)	Debris Depth (from Invert)	Condition
A.	4"Ø	VCP	Blg	8.52	0"	0"	Good
B.	12"Ø	DI	DIADMH0605	8.68	0"	0"	Good
C.	6"Ø	VCP	Blg	8.58	0"	0"	Good
D.	12"Ø	RCP	Bulkheaded	8.64	0"	0"	Poor

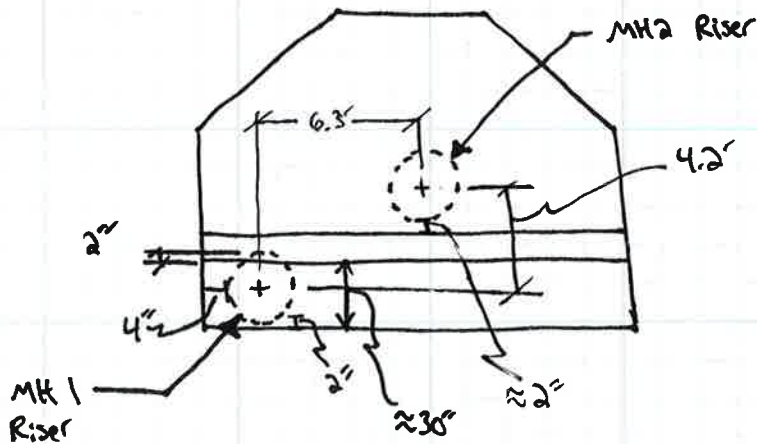
**Location of MH** - ROADWAY, SIDEWALK, ROADSIDE, ALLEY, EASEMENT, Other \_\_\_\_\_

**Manhole Material** - Brick, Clay Block, Poured Concrete, Manhole Block, Precast Concrete, Other \_\_\_\_\_

**Flow** - Steady, Pulsing, Turbulent, Surcharging, Stagnant, Sluggish, No Flow, Other \_\_\_\_\_

**Clarity of Flow** - Normal Sewer Appearance, Cloudy, Clear, No Flow.

**Recommendations** - No Action Rebuild, Line Manhole Wall, Reset Frame, Clean / Remove debris from Invert



**MH1**

- Rim to top of weir = 6.09'
- Rim to floor @ weir = 11.53' & 11.56'
- Rim to top of inside of structure = 4.45'
- Top slab = 12"
- Rim to top of riser = 1.55'
- Riser = 30"Ø precast conc. w/ 30"Ø cover

**MH2**

- Rim to top of debris = 15.72
- Rim to floor ≈ 16.14 (within sump)
- Rim to top of water = 11.42
- Rim to top of weir = 7.66 (Notch in Weir)
- Riser = 30"Ø precast conc. w/ 30"Ø cover

Notes:  
 ↳ SA4CMH1200 = 5'Ø  
 ↳ Pacific/Purington = SA235MH0015  
 SMH = 4'Ø precast conc.  
 Rim to top of Inlet = 12.30'  
 Rim to top of shelf = 13.18'



**Field Test Kit Results:**

<b>Pipe (A-F):</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>
<b>Flow, GPM</b>						
<b>Ammonia, mg/L (Compliant <math>\leq</math> 0.5 mg/L)</b>						
<b>Surfactants, mg/L (Compliant <math>\leq</math> 0.25 mg/L)</b>						
<b>Chlorine, mg/L (Compliant <math>&lt;</math> 0.02 mg/L)</b>						
<b>Water Temperature, degrees C</b>						
<b>pH</b>						
<b>Conductivity, <math>\mu</math>S</b>						
<b>Salinity, ppt</b>						



**Field Test Kit Results:**

<b>Pipe (A-F):</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>
<b>Flow, GPM</b>						
<b>Ammonia, mg/L (Compliant <math>\leq</math> 0.5 mg/L)</b>						
<b>Surfactants, mg/L (Compliant <math>\leq</math> 0.25 mg/L)</b>						
<b>Chlorine, mg/L (Compliant <math>&lt;</math> 0.02 mg/L)</b>						
<b>Water Temperature, degrees C</b>						
<b>pH</b>						
<b>Conductivity, <math>\mu</math>S</b>						
<b>Salinity, ppt</b>						





D12DMH 0805

Field Test Kit Results:

Pipe (A-F):	A	B	C	D	E	F
Flow, GPM				1-2		
Ammonia, mg/L (Compliant $\leq 0.5$ mg/L)				0.0		
Surfactants, mg/L (Compliant $\leq 0.25$ mg/L)				2.0 $\rightarrow$ sent to lab		
Chlorine, mg/L (Compliant $< 0.02$ mg/L)				0.05		
Water Temperature, degrees C				9°C		
pH				7.03		
Conductivity, $\mu$ S				268		
Salinity, ppt				1.40		



**Field Test Kit Results:**

<b>Pipe (A-F):</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>	<b>F</b>
<b>Flow, GPM</b>						
<b>Ammonia, mg/L (Compliant <math>\leq</math> 0.5 mg/L)</b>						
<b>Surfactants, mg/L (Compliant <math>\leq</math> 0.25 mg/L)</b>						
<b>Chlorine, mg/L (Compliant <math>&lt;</math> 0.02 mg/L)</b>						
<b>Water Temperature, degrees C</b>						
<b>pH</b>						
<b>Conductivity, <math>\mu</math>S</b>						
<b>Salinity, ppt</b>						

**APPENDIX H**  
**SAMPLING PROCEDURE**

## Recommended Illicit Connection Survey Procedure

**Step 1:** Confirm separation work is complete and manhole inverts have been installed

**Step 2:** Clean storm drain and pump out flow in mainline sump manholes

**Step 3:** Designate testing reaches from upstream DMH to downstream DMH. If mainline sump manholes exist then the sump manhole must be designated as the downstream testing manhole

**Step 4:** Install sandbags in downstream drain manholes creating a dam for upstream testing reach

**Step 5:** Wait 48 hours (2 nights and 2 mornings) with no precipitation for any dryweather flow to accumulate behind sandbag dam

**Step 6:** Begin sampling:

If no flow is found behind sandbag dam then reach = compliant

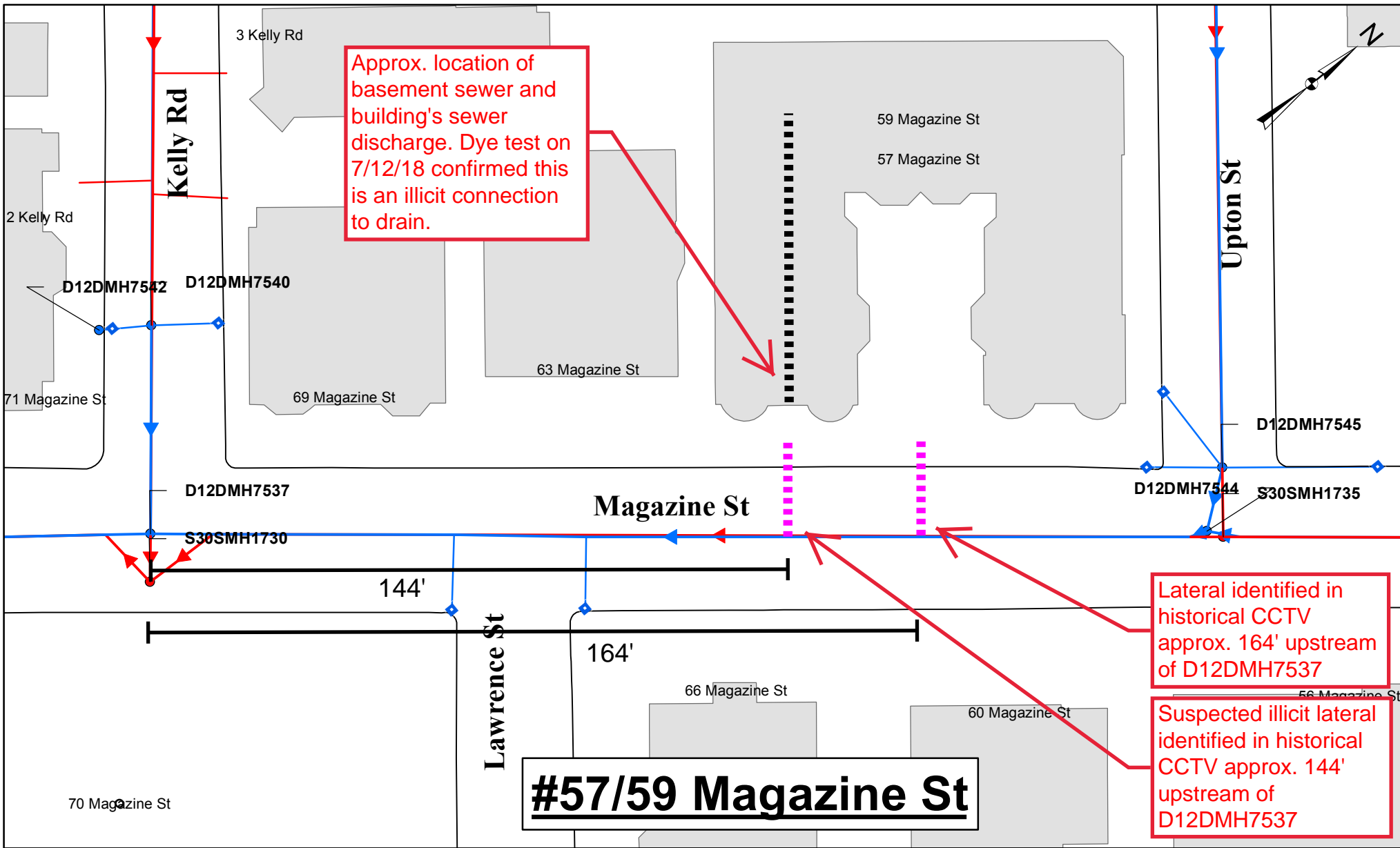
If flow is built up behind sandbag dam:

- Collect (2) e.coli samples for laboratory
- Use Field Kits to test Ammonia & Surfactants:
  - Ammonia Field Kit = CHEMets Kit No. K-1410
    - Compliant  $\leq 0.5$  mg/L
    - Non-compliant  $> 0.5$  mg/L
  - Surfactants Field Kit = CHEMets Kit No. K-9400
    - Compliant  $\leq 0.25$  mg/L
    - Non-compliant  $> 0.25$  mg/L
- If field kits are compliant no further samples are needed for the lab
- If field kits are non-compliant then collect Ammonia and Surfactants sample for the lab
- Lab Parameters:
  - E.coli Lab Sample:
    - Compliant  $\leq 235$  cfu/100mL
    - Non-compliant  $> 235$  cfu/100mL
  - Ammonia Lab Sample:
    - Compliant  $\leq 0.5$  mg/L
    - Non-compliant  $> 0.5$  mg/L
  - Surfactants Lab Sample:
    - Compliant  $\leq 0.1$  mg/L
    - Non-compliant  $> 0.1$  mg/L

**Step 7:** If sampling identifies non-compliant reaches begin dye testing buildings to identify illicit sources and redirect illicit within reach

**Step 8:** Repeat cleaning, sandbagging, and sampling procedure again to verify the storm drain has no illicit sanitary flow

**APPENDIX I**  
**ILLCIT REDIRECTION SKETCHES**



**PROJECT: CAMBRIDGEPORT STORMWATER IMPROVEMENTS**  
**TITLE: ILLICIT CONNECTIONS**  
**DATE: 7/13/2018**

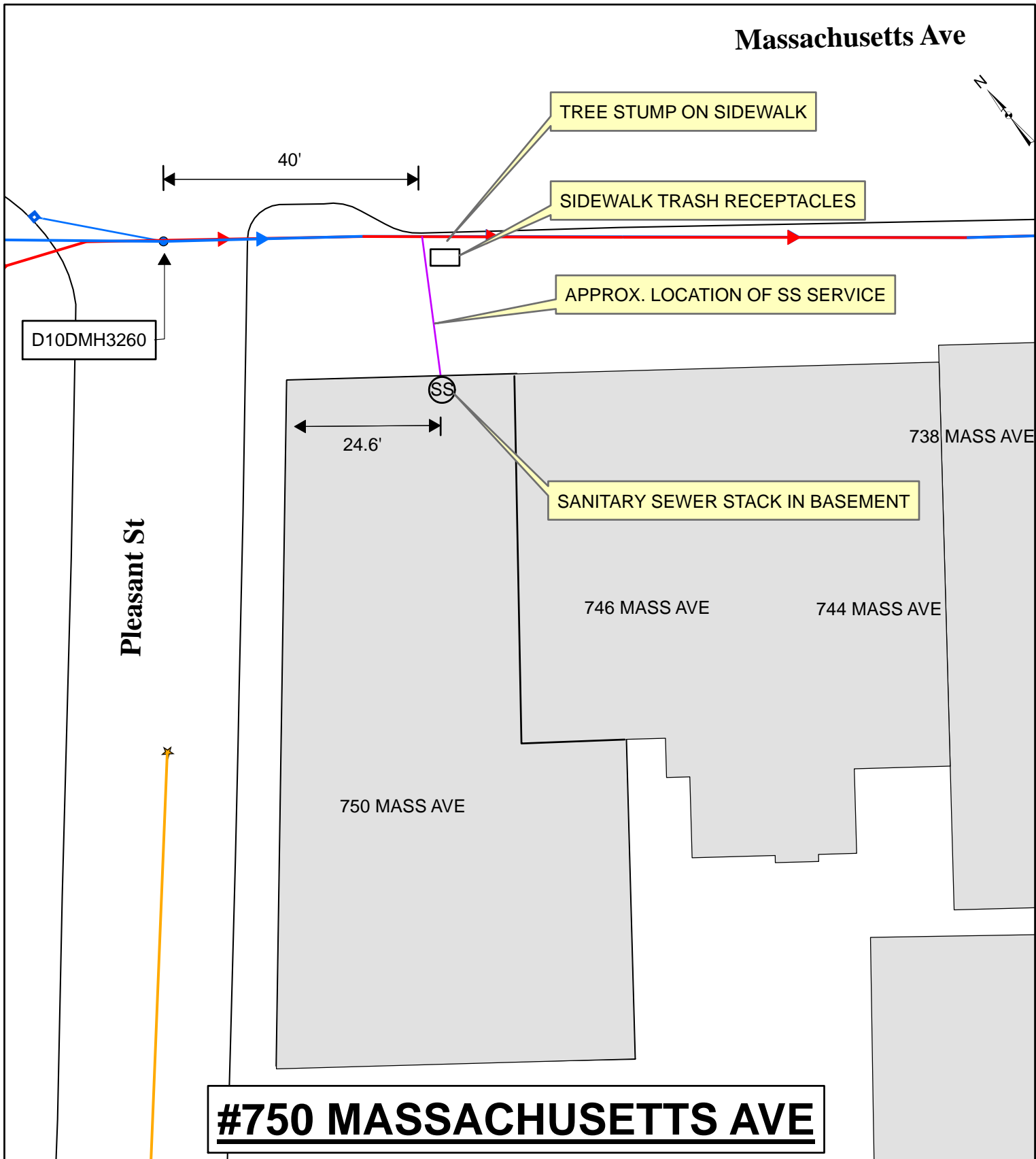
- Sewer
- Drain
- Combined Sewer
- Drain Lateral
- Sewer Manhole
- Drain Manhole
- Combined Sewer Manhole

SCALE:

1 inch = 30 feet

0 5 10 20 Feet





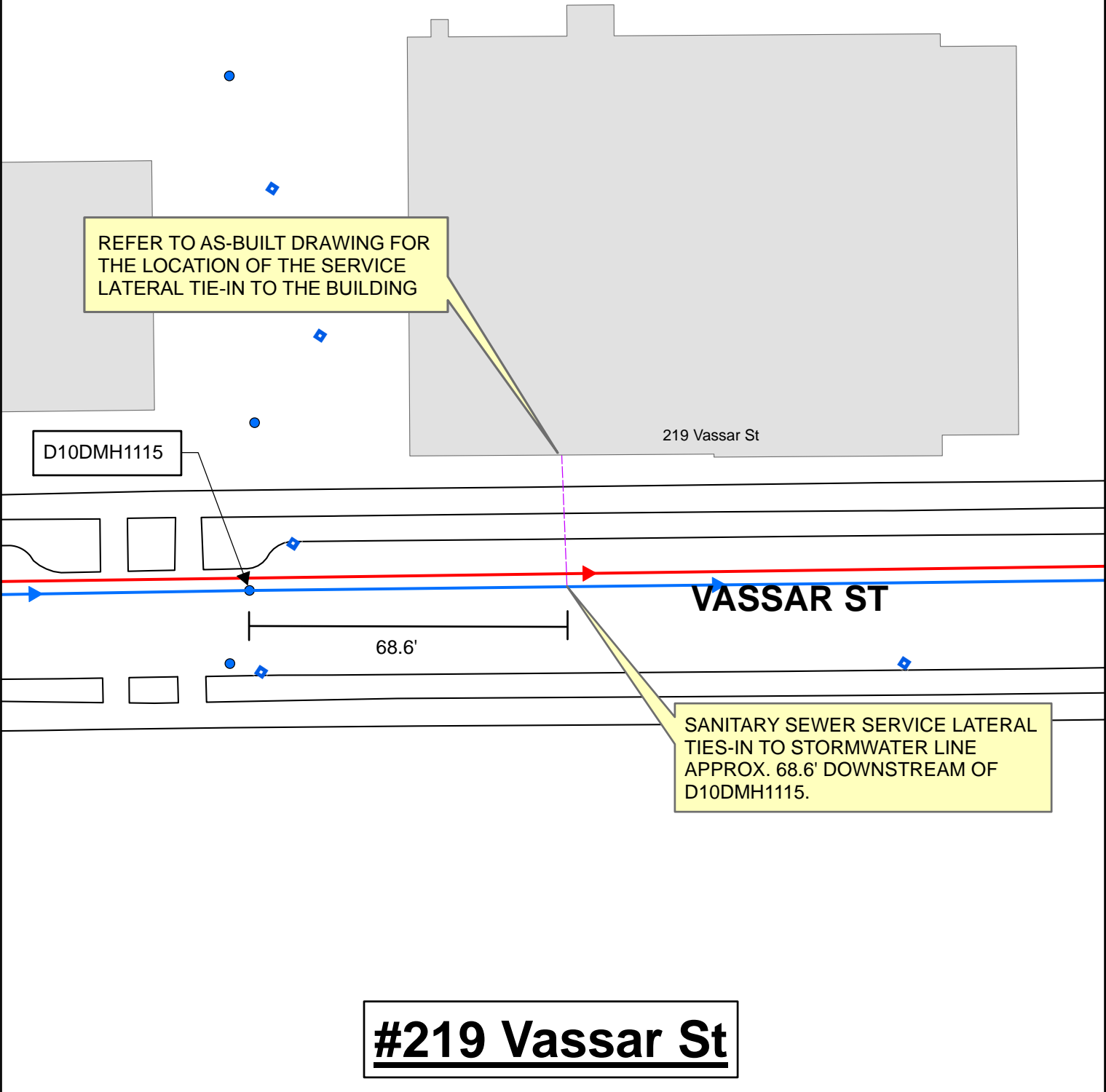
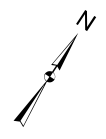
**PROJECT: CAMBRIDGEPORT  
STORMWATER IMPROVEMENTS**  
**TITLE: ILLICIT STORMWATER  
CONNECTION**  
**DATE: 4/4/2018**

- Sewer Manhole
- Drain Manhole
- Combined Sewer Manhole
- SS SANITARY SEWER STACK
- Sewer
- Drain
- Combined Sewer

SCALE:  
1 inch = 20 feet

0 5 10 20 Feet





**#219 Vassar St**



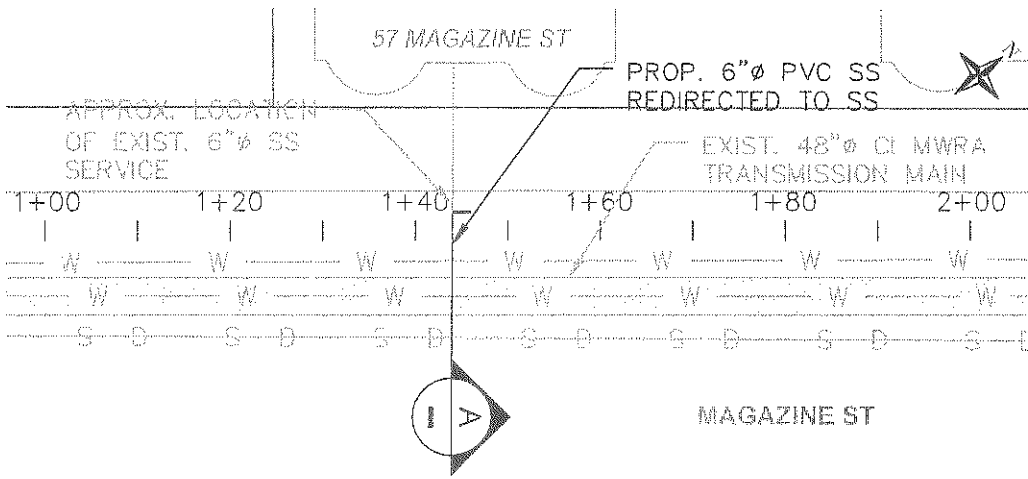
**PROJECT: CAMBRIDGEPORT  
STORMWATER IMPROVEMENTS  
TITLE: ILLICIT STORMWATER  
CONNECTION  
DATE: 4/20/2018**

- Sewer
- Drain
- Combined Sewer
- Sewer Service Lateral
- Sewer Manhole
- Drain Manhole
- Combined Sewer Manhole

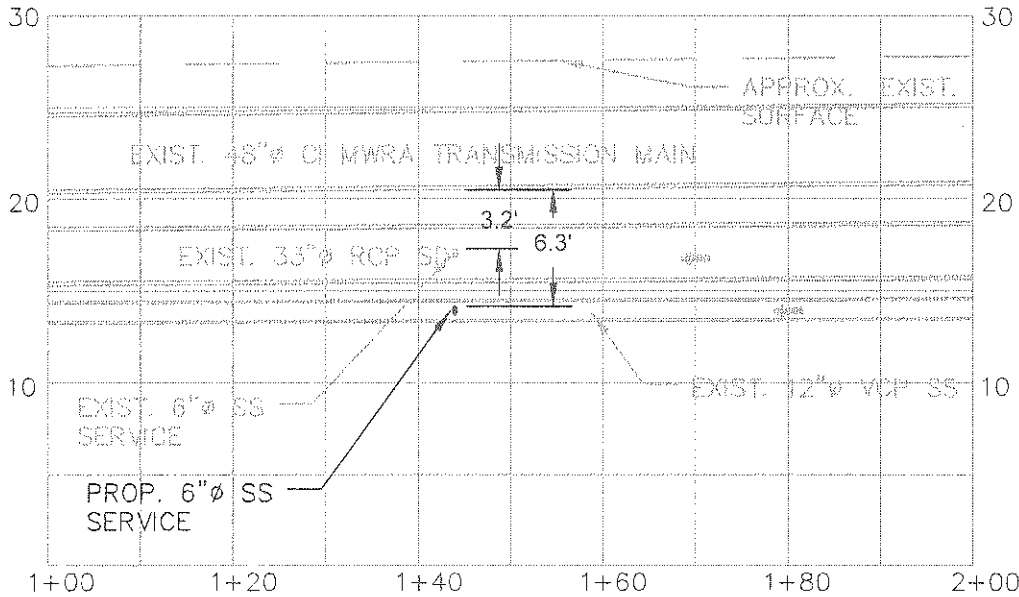
SCALE:  
1 inch = 30 feet  
0 5 10 20 Feet

**APPENDIX J**  
**ILLCIT REDIRECTION AS-BUILTS**

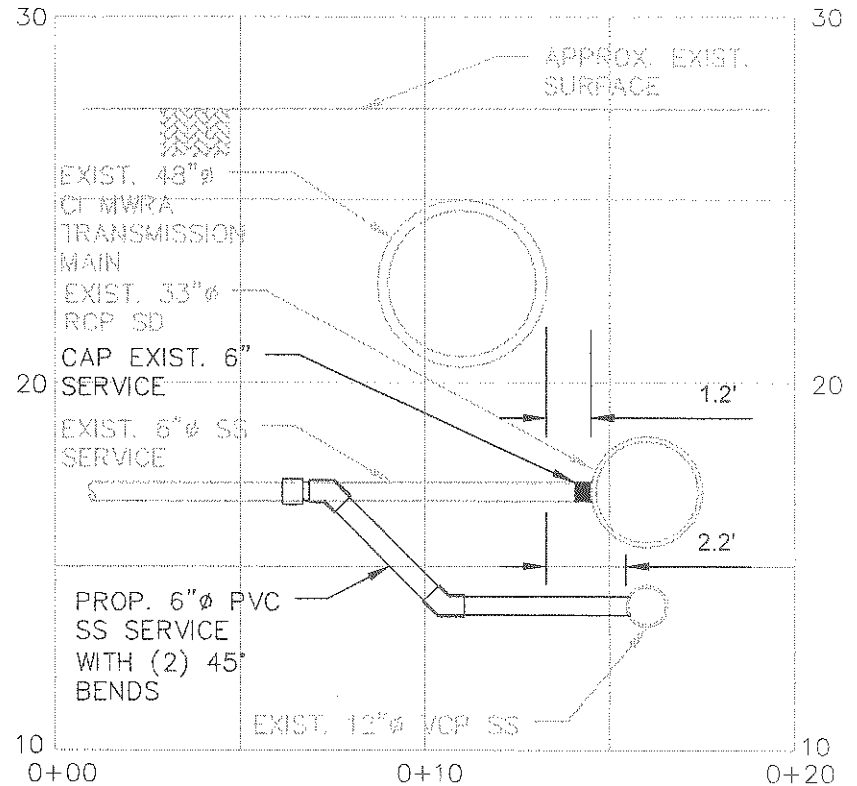
PLOT DATE=9/25/2018 11:01:07 AM USER=MARTINEZ, JUSTIN, FILENAME=C:\pwworkdir\04089509\CPORT C 57 MAGAZINE ST.dwg



PLAN  
SCALE: 1"=20'



PROFILE  
HORIZONTAL SCALE: 1"=20'  
VERTICAL SCALE: 1"=10'



A SECTION  
SCALE: 1"=5'

# 57 Magazine Illicit Redirection As-Built

SKETCH:

## #57 MAGAZINE STREET SEWER LATERAL REPAIR

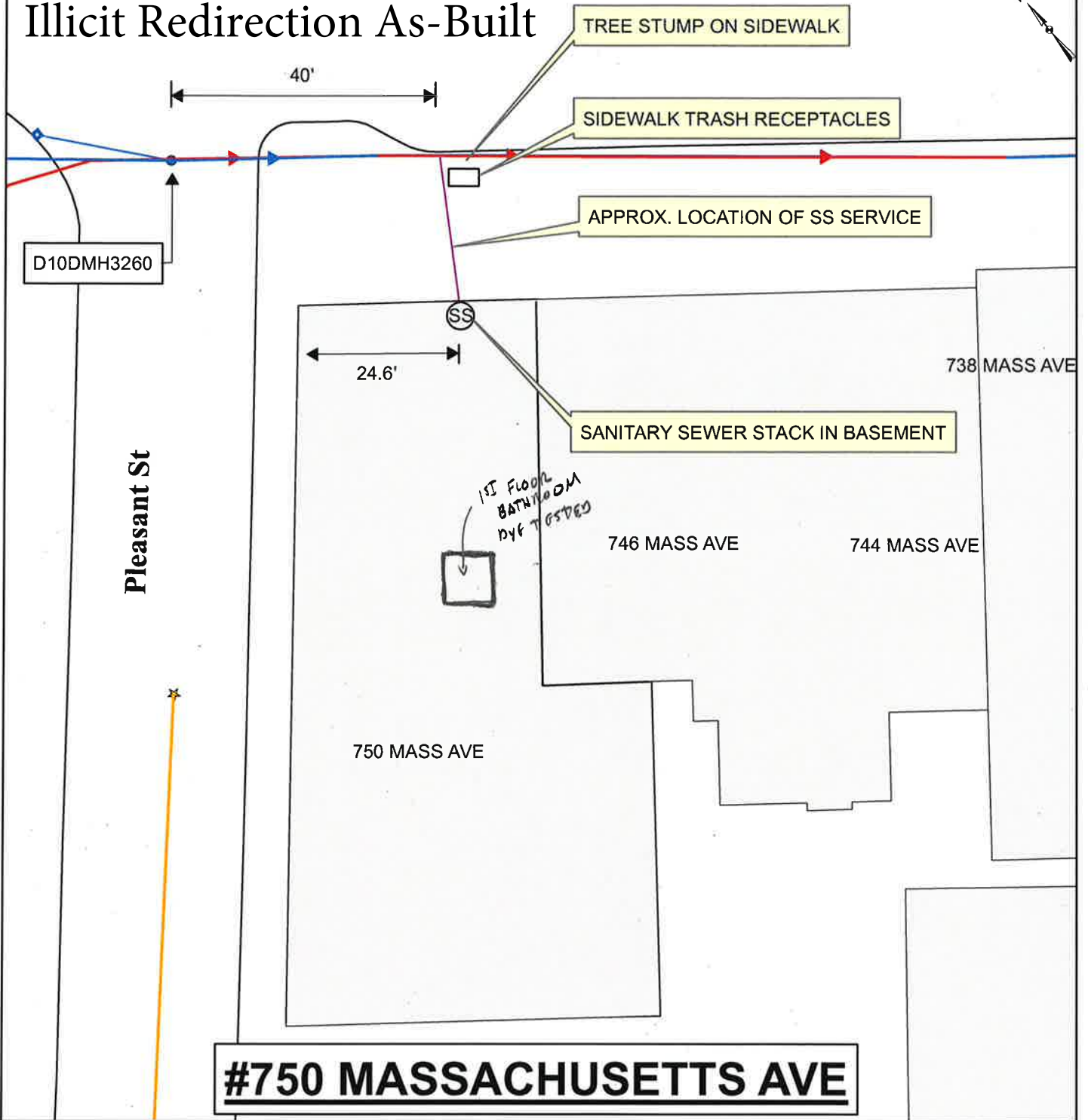
CITY OF CAMBRIDGE, MASSACHUSETTS



SEPTEMBER, 2018

# 750 Mass Ave Illicit Redirection As-Built

Massachusetts Ave

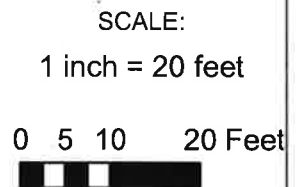


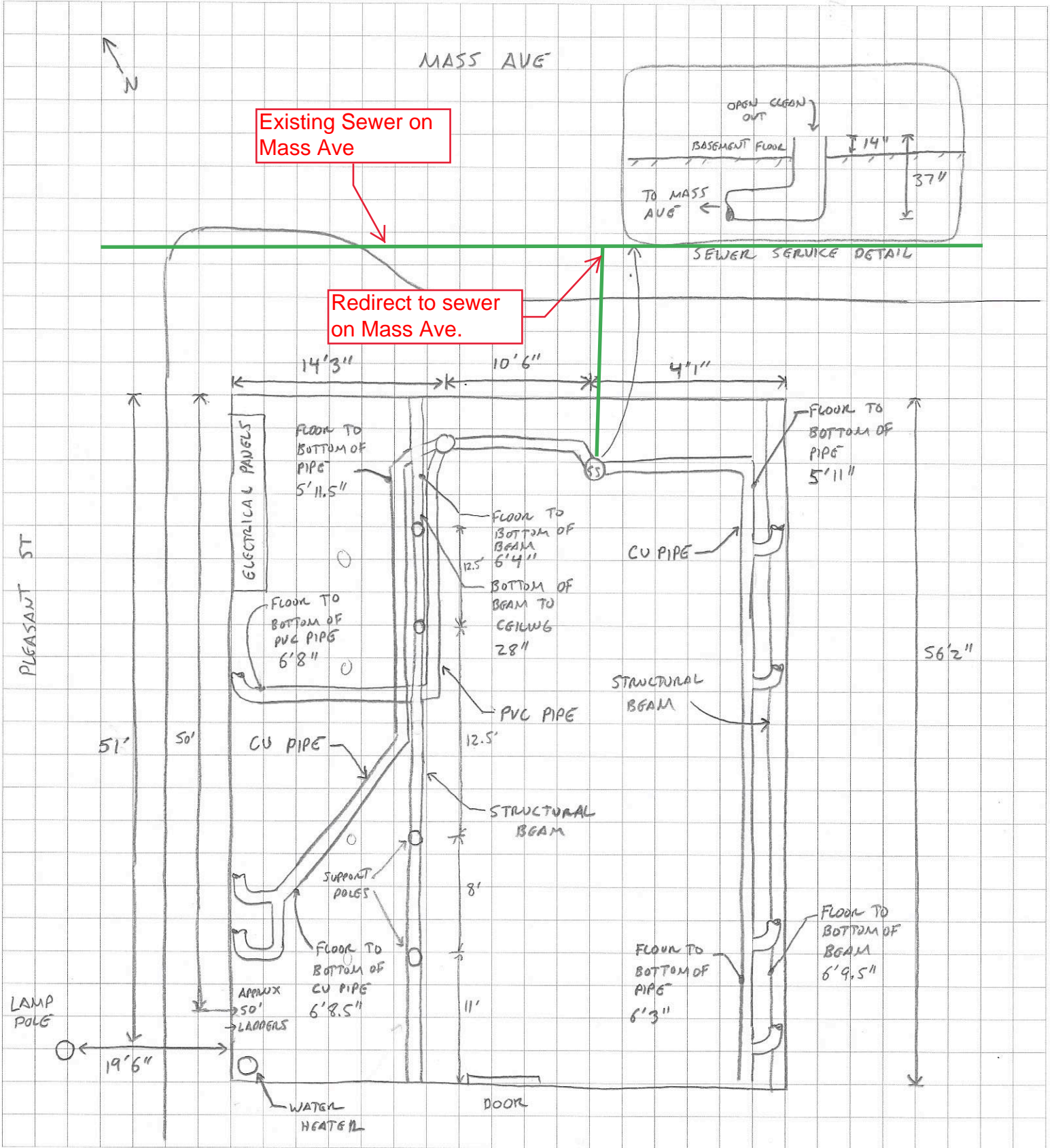
**#750 MASSACHUSETTS AVE**



**PROJECT: CAMBRIDGEPORT  
STORMWATER IMPROVEMENTS  
TITLE: ILLICIT STORMWATER  
CONNECTION  
DATE: 4/4/2018**

- Sewer Manhole
- Drain Manhole
- Combined Sewer Manhole
- SS SANITARY SEWER STACK
- Sewer
- Drain
- Combined Sewer





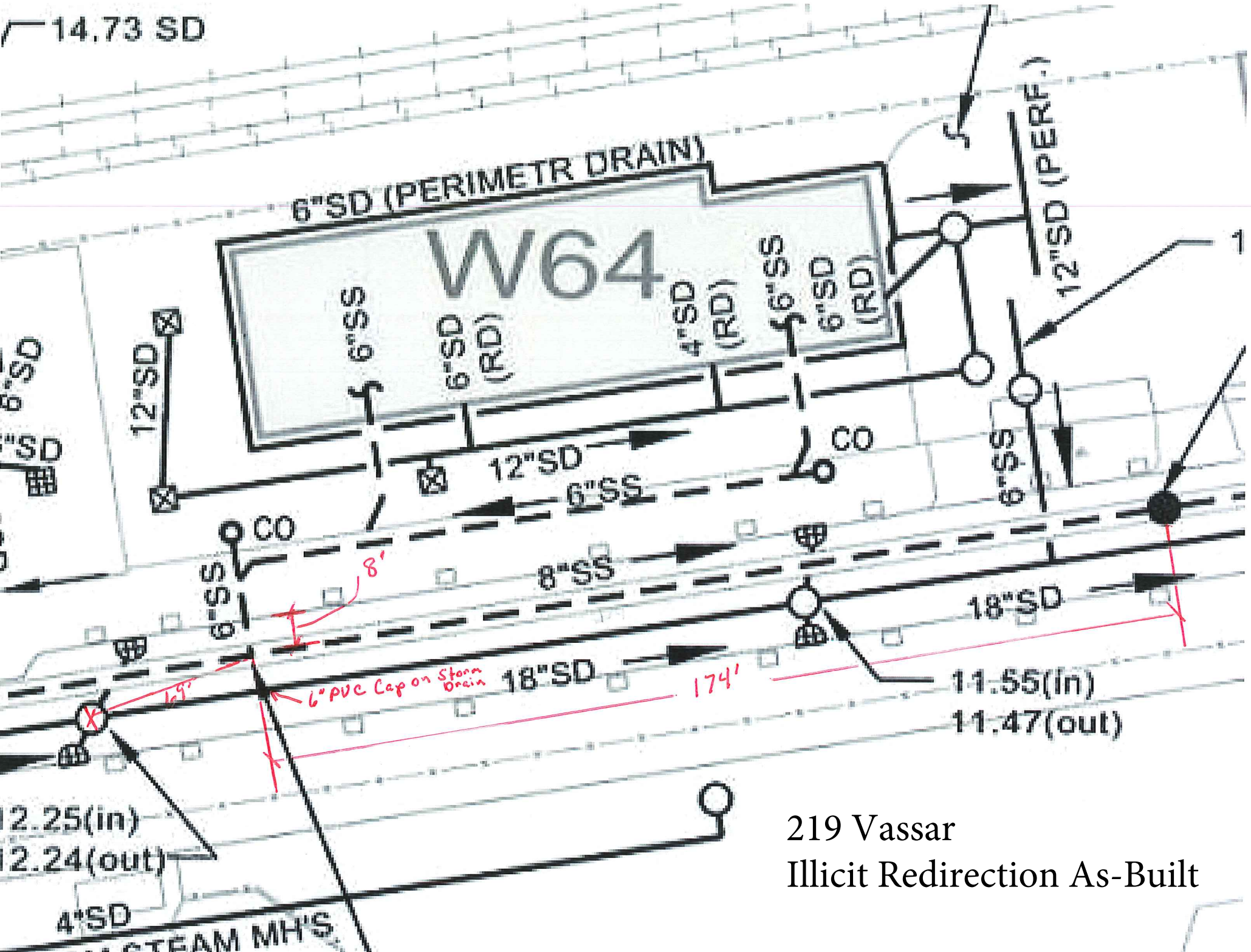
# 750 MASS AVE - BUILDING INSPECTION (NTS)  
12/19/18

Designed by:

Checked by:

**Alt 3 - Redirect to Sewer on Mass Ave**

14.73 SD



219 Vassar  
Illicit Redirection As-Built